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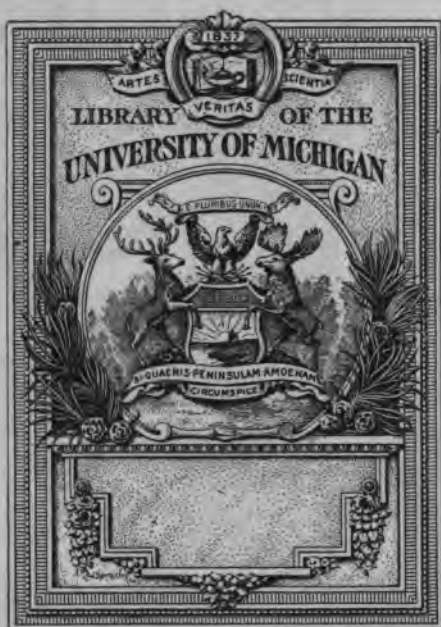
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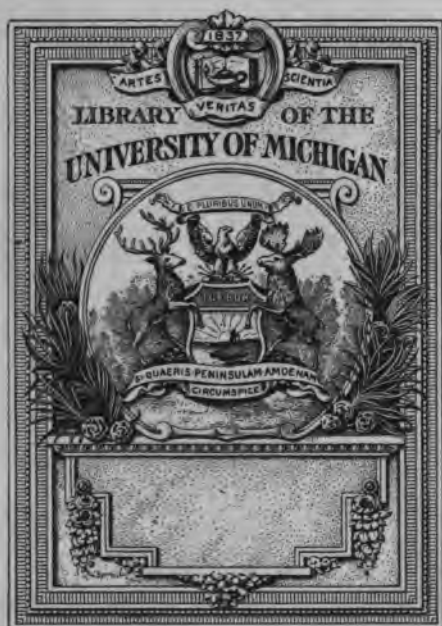
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HAND-LIST

OF

CONIFERAE,

GROWN IN

THE ROYAL BOTANIC GARDENS.

(SECOND EDITION.)



LONDON:

SOLD AT THE ROYAL BOTANIC GARDENS, KEW.

PRINTED FOR HIS MAJESTY'S STATIONERY OFFICE,
By DARLING & SON, LTD., 34-40, BACON STREET, E.

1903.

Price Threepence.

PREFACE.

THIS Hand-list might properly have formed part of that of the "Trees and Shrubs grown in the Arboretum," but so many persons possess collections of Conifers who are not interested in other ligneous plants that there was an obvious convenience in treating them separately. There was the further advantage that this enabled the species which are grown under glass to be included. The natural order, or rather group, *Coniferae*, is so well defined that it is desirable to enumerate in one list all the species actually in cultivation at Kew.

The present Hand-list (first edition) comprises 227 species, with 340 varieties, belonging to 37 genera.

Sir Joseph Hooker, the late Director of the Royal Gardens, had contemplated the preparation of a Catalogue of the Kew Pinetum. In view of this he had drawn up a brief review of the literature of the subject, which he has now, after revision, kindly permitted to be used.

"In the following list the species are referred to the genera under which they have been placed by the latest authorities, who have revised the Order *Coniferae*. That such an authoritative list should be published is the wish

of all intelligent cultivators of these interesting plants, and its publication in this country is rendered all the more needful from the fact that British cultivators alone persist in referring the Silver Firs to *Picea*, and the Spruces to *Abies*, a practice long abandoned on the Continent, and which has not been adopted in America. And if, as I hope, the correct nomenclature will in future be adopted in regard to the Latin names of these genera, I would further urge a reform in respect of their English equivalents, in so far as to confine the use of the words Pine to the species of *Pinus*, of Spruce to those of *Picea*, and of Silver Fir to those of *Abies*. We should then be in accordance with the universal practice throughout North America, which is the head-quarters of all three genera, where a Pine is never called a Fir, nor a Fir called a Spruce, nor a Spruce a Pine.

The following historic sketch of the various essays of Botanists to limit the genera and species of *Abietineae* shows how divergent have been their views. I have endeavoured to make it more instructive, by giving (where there are materials for doing so) under each attempt the number of species known to its author, thus further showing the progressive discovery of species during the last hundred and eighty years or thereabouts.

Tournefort, in 1717, indicated the three genera *Abies*, *Pinus*, and *Larix* (including *Cedrus*); and his *Cedrus* is *Juniperus*.

In 1731 the first edition of *Miller's Gardener's Dictionary* appeared, where he has *Pinus*, *Cedrus*, *Larix* and *Abies* with 16 species in all.

Linnaeus, in 1753, included these all under *Pinus*, of which he enumerated 10 species.

In 1789 A. L. de Jussieu, in his *Genera Plantarum*, has only two genera, *Pinus* and *Abies*.

In the same year the first edition of Aiton's *Hortus Kewensis* appeared, wherein all the *Abietineae* (19 species) are included under *Pinus*.

In 1803 was published the first edition of Lambert's *Genus Pinus*, containing about 35 species of *Abietineae*, all included under *Pinus*.

In 1813 the second edition of the *Hortus Kewensis* appeared, in which, as before, all the *Abietineae* (increased to 29) are included under *Pinus*.

In 1826 Louis Claude Richard's *Mémoire sur les Conifères* was edited by his son. This classical work is the earliest that dealt scientifically with the order *Coniferae*, and in it the Tribe *Abietineae* was first established, to include *Pinus* (under which were placed Spruces and Silver Firs), and *Larix* (which included the Cedars); to these were added, *Cunninghamia*, *Agathis* (*Dammara*), and *Araucaria*, which now form a distinct Tribe.

In 1827 Link, in the *Journal of the Academy of Sciences of Berlin*, proposed the five genera: *Pinus*, *Picea* (for Spruces), *Abies* (for Silver Firs), *Larix*, and *Cedrus*.

In 1832 the second edition of Lambert's *Genus Pinus* appeared, wherein the *Abietineae* were all, as before, included under *Pinus*; which however was broken up by David Don (Lambert's Herbarium keeper) into six

sections, *Pinus*, *Strobus*, *Abies* (for the Spruces), *Picea* (for the Silver Firs and Tsugas), *Larix*, and *Cedrus*. About 48 species in all are described.

In 1838 London's great work, the *Arboretum et Fruticetum Britannicum*, appeared. The Tribe *Abietineae* is here adopted as defined by Richard, with the genera *Pinus*, *Abies*, *Picea*, *Larix*, and *Cedrus*: and here that confusion of *Abies* and *Picea* which so distresses British foresters and planters had its origin. At p. 2105 there is a clavis of the genera, where the genus *Abies* is attributed to Link, but the characters given to it are those of Link's *Picea*; and in like manner *Picea* is attributed to Link, though the characters given are those of Link's *Abies*, and they are followed by *D. Don* in brackets. Turning now to the full account of the genera, at p. 2293, we find "*Abies*, *D. Don* in Lamb. Pin. vol. iii." with the addition of "*Picea*, Link" as a synonym, followed by descriptions of the Spruces. And at p. 2329 we have "*Picea*, *D. Don* in Lamb. Pin. vol. iii." with *Abies*, Link, as a synonym; followed by descriptions of the Silver Firs. Now not only was the edition of Lambert's work subsequent to Link's establishment of *Picea* for Spruces and *Abies* for Silver Firs, but Don nowhere in Lambert's *Genus Pinus* proposed these names as generic. Disregarding this blundering, which probably originated in the elaboration of the conifers being a composite work of Don and Loudon working apart, there remains but one argument for preferring Don's nomenclature, which is, that Linnaeus called the Silver Fir *Pinus Picea* and the Spruce *P. Abies*, assuming that he was following the practice of the ancients, in which he is known to have been mistaken.

Owing to the great merit and utility of Loudon's *Arboretum*, his nomenclature has hitherto been universally adopted in the United Kingdom. It contains descriptions of about 70 species of *Abietineae*.

In 1841 Link (in *Linnaea*, vol. xv., p. 481) reviewed the whole Tribe of *Abietineae*, retaining, as before, *Pinus*, *Picea*, *Abies*, *Larix*, and *Cedrus*, and enumerating 52 species.

In 1841-46, Antoine's *Die Coniferen* appeared, in which all the *Abietineae* are referred to *Pinus*, with sections of *Pinus* proper, *Larix*, *Cedrus*, *Picea*, Don, *Abies*, Don, and *Tsuga*; he describes 90 species.

In 1842 Spach, in his *Histoire Naturelle des Végétaux*, adopted *Pinus*, *Abies* (including under it as sections *Picea*, Link, *Tsuga*, and *Pseudotsuga*), *Cedrus*, and *Larix*.

Endlicher, in the same year, in his *Genera Plantarum* reverted to Linnaeus' practice of including all under *Pinus*, but made four sections—*Pinus* proper, *Picea*, Link, *Abies*, Link, and *Larix*, including *Cedrus*.

In the same author's *Synopsis Coniferarum*, published two years later, he maintains the genus *Pinus* entire, as before, but subdivides it into 11 sections, with 109 species.

In 1850 Lindley and Gordon published (in the *Journal of the Horticultural Society*, vol. v.) "An Enumeration of *Coniferae* cultivated in Great Britain," where two genera only are adopted, *Pinus* and *Abies*, and the latter is subdivided into Firs (including Spruces), Larches, and Cedars, with 119 species.

Meisner in 1836-43 published his *Genera Plantarum Vascularium*, wherein he includes all *Abietineae* under *Pinus*, with, as sections, *Pinus* proper, *Picea*, Link, *Abies*, Link, and *Larix*, including *Cedrus*.

In 1855 Carrière's *Traité général des Conifères* appeared; he keeps up *Pinus*, *Abies*, Link, *Picea*, Link, *Larix*, *Cedrus*, and *Tsuga*, which includes *Pseudotsuga*. This work enumerates 133 species, many of which are now ranked as varieties.

In 1858 appeared the first edition of Gordon's *Pinetum*, in which he maintains *Pinus*, *Abies*, Don (including *Tsuga* and *Pseudotsuga*), *Picea*, Don, *Larix*, *Cedrus*, and *Pseudolarix*. He enumerates 131 species, of which many are imperfectly known.

In 1865 Henkel and Hochstetter published their *Die Coniferen*, with the following arrangement, *Pinus*, *Abies* (including *Picea*, Link, *Abies*, Link, *Tsuga*, and *Pseudotsuga*), *Cedrus*, *Larix*, and the new genus *Pseudolarix*, Gord. They describe 130 species, which should be reduced much as Carrière's should be.

In 1867 the second edition of Carrière's *Traité* was published, in which all the genera of the first edition are retained together with *Pseudotsuga* and *Keteleeria*, and 153 species are described, excluding many dubious ones.

In 1868 Parlatore's monograph of the order appeared in the 16th volume of De Candolle's *Prodromus*. The genus *Pinus* is divided into two sub-genera *Pinus* proper for the Pines, and *Sapinus*; which latter includes

as sections only *Picea*, Link, *Abies*, Link, *Cedrus*, *Larix*, *Pseudolarix*, *Tsuga*, and *Pseudotsuga*. The species described are 162.

In 1875 the second edition of Gordon's *Pinetum* was published, in which the same genera are retained as in the 1858 edition, with 150 species.

Lastly, in the *Genera Plantarum* (1882), Mr. Bentham and I have distinguished *Pinus*, *Picea*, Link, *Abies*, Link, *Tsuga*, *Pseudotsuga*, *Larix*, and *Cedrus*, to which must now be added *Pseudolarix* and probably *Keteleeria*, both at that time very imperfectly known.

In 1886 Dr. M. T. Masters published (*Journal of the Linnean Society*, xxii. pp. 169-212, tt. 2-10, with 32 woodcut figures in the text) some "Contributions to the History of certain Conifers." This was followed in 1890 by a "Review of some points in the comparative Morphology, Anatomy, and Life History of the Coniferae" (*Journ. Linn. Soc.*, xxvii. pp. 226-332, with 29 woodcut figures in the text), and in 1895 by "Notes on the Genera of *Taxaceae* and *Coniferae*" (*Journ. Linn. Soc.*, xxx. pp. 1-42).

In 1889, two years after his death, Dr. A. W. Eichler's elaboration of the Coniferae appeared in Engler and Prantl's *Die Natürlichen Pflanzenfamilien*. He classifies the genera under two primary divisions: *Pinoideae* and *Taxoideae*. The former he again divides into *Abietineae* and *Cupressineae*, with several ternary divisions, and the latter into *Podocarpeae* and *Taxaceae*. The genera are limited, with few exceptions, as they are by Bentham and Hooker; but he retains *Chamaecyparis*, *Thuopsis*

and *Pseudolarix*, and sinks *Pseudotsuga* in *Tsuga* and *Prumnopitys* in *Podocarpus*.

In 1891 L. Beissner published a *Handbuch der Nadelholzkunde*. This was preceded by a *Handbuch der Coniferen-Benennung* (1887), followed by two supplements (1891-2) on *Einheitliche Coniferen-Benennung*. Beissner deals critically with the numerous natural and garden varieties and hybrids. He has also paid much attention to nomenclature, though he accepts familiar names rather than revive obscure ones on the rule of priority.

In 1892 the Royal Horticultural Society held a "Conifer Conference," and the papers read thereat form the fourteenth volume of the *Journal* of the Society. This is one of the most interesting volumes issued by the Society, containing a great variety of valuable information concerning *Coniferae*, including a general introduction and a list of the species cultivated in Great Britain and Ireland, by Dr. M. T. Masters, F.R.S.

In 1894 H. Baillon (*Histoire des Plantes*, xii. pp. 1-45) published an account of the order, with a synopsis of the genera, which he reduced to twenty-four, including *Casuarina*. He divides the order into eight "series," namely: *Taxées*, *Cupressées*, *Junipérées*, *Athrotaxées*, *Nagéiées*, *Araucariées*, *Pinées*, and *Casuarinées*. The inclusion of the last is inexplicable, and some changes in nomenclature will not meet with general approval. *Belis*, Salisb. is revived for *Cunninghamia*, R. Br.; *Podocarpus*, Labill. for *Phyllocladus*, Rich.; *Agathis*, Salisb. for *Dammara*, Lamk., and *Nageia*, Gaertn. for *Podocarpus*, L'Herit."

Sir Joseph Hooker has been for some years so incessantly occupied with the completion of his "*Flora of British India*" that the detailed study of the Kew Pinetum which, as will be seen, he had proposed to himself, is entirely beyond his powers. Kew has, however, had the advantage, in drawing up the present Hand-list, of the assistance of Dr. Masters, F.R.S., who is now the acknowledged authority on the nomenclature of Conifers in this country. As a general rule at Kew, the *Genera Plantarum* is accepted as the standard of nomenclature. In the present case some deviations have been adopted, which have received the concurrence of Sir Joseph Hooker. Of these Dr. Masters has been so good as to furnish the following brief explanation :—

"The arrangement of the genera in the following list differs in a few particulars from that adopted in Bentham and Hooker's *Genera Plantarum*. The principal difference consists in the maintenance of the *Taxaceae* as a distinct order as originally proposed by Richard and followed by Endlicher, Lindley, and many other botanists. This arrangement permits of a more natural arrangement of the several taxaceous genera under two tribes, the *Salisburineae* comprising *Ginkgo*, *Cephalotaxus*, and *Torreya*, and the *Taxineae* including the two sub-tribes *Taxaeae* and *Podocarpeae*. *Prumnopitys*, Philippi (with which *Stachycarpus*, Van Tieghem, is synonymous) is placed by Bentham and Hooker under *Podocarpus*, but the combination of morphological and histological characters point to the desirability of maintaining it as a separate genus.

"Among the *Coniferae* proper or *Pinaceae* a few changes have been made from the grouping of Bentham and Hooker in accordance with the fuller knowledge of certain points of structure that is now available. *Tetraclinis* is proposed as a distinct genus, represented by the North African *Callitris quadrivalvis*, on the ground of its structure and geographical distribution. *Widdringtonia* is separated from *Callitris* for similar reasons.

"The sub-divisions of *Cupressus* and of *Thuya* have been bandied about between the two genera. The genus *Cupressus*, as here understood, includes the Cypresses proper and the so-called flat Cypresses (*Chamaecyparis*), which Bentham and Hooker place under *Thuya*, and which others prefer to consider as a separate genus. *Retinispora*, it is now well known, has no claim to a separate generic position, the so-called species of this genus being merely stages of growth of particular species of *Thuya*, *Juniperus*, *Cupressus*, etc. This is proved by the occasional occurrence of many of these forms on the same bush. The North-Western American *Thuioopsis*, placed under *Thuya* by Bentham and Hooker, is more like a *Cupressus*, whilst the Japanese plant known under the same generic name is a true *Thuya*. Probably the fusion of *Cupressus* and *Thuya* into one genus would be the most natural arrangement, but in practice the inconvenience of such a grouping and the consequent confusion of the nomenclature would be almost intolerable.

"*Pseudolarix* of Gordon is shown by the male flowers to constitute a distinct genus, as was indeed suspected by Bentham.

"*Keteleeria* of Carrière, referred by Bentham to *Abies*, is also shown by the fuller knowledge we now have of its structure to constitute a distinct genus."

The collections of *Coniferae* at Kew have occupied three different positions at successive times. According to John Smith's privately printed *Records of Kew* (p. 258), the original Arboretum consisted of about five acres. It lay between the Temple of the Sun and the present Main Entrance. It was laid out by W. Aiton on the Linnean system. "*Pinus* occupied the north and part of the east."

In the first edition of the *Hortus Kewensis* (1789) Aiton enumerates 36 species of *Coniferae* as cultivated at Kew; in the second edition (1813) 56 species are recorded, "which formed the collection in the original Arboretum." Some of these still remain. According to Smith (p. 286), "within a few yards of the entrance gates on Kew Green stands a specimen of *P. Laricio* (the Corsican Pine). In 1825 the late R. A. Salisbury informed me that he brought it from the south of France, in the year 1814; it is now (1880) 85 feet high, and the most conspicuous tree in the Gardens."

Ginkgo biloba (*Salisburia adiantifolia*), first introduced in 1754, was, according to Smith (p. 267), "originally trained against a wall like a fruit tree; upon the wall being taken down, and the branches cut away, it is now (1880) a fine tree. When against the wall one of its side branches early produced male flowers." It again did so in 1895, and probably in previous years.

Cedrus Deodara was, according to Smith (p. 287), introduced "by the Hon. Leslie Melville, in the year

1831, who, on visiting the Gardens, gave me a few seeds which he had loose in his pocket, one of which vegetated, and after several years nursing was planted in the old Arboretum. . . . In 1864 it had attained a height of 32 feet." The tree became diseased and was taken down in 1888. Near its former position is one, now nearly as large, raised from seed ripened in England by Sir T. D. Acland, Bart.

In 1843, by permission of the Queen, about 45 acres were added to the original Botanic Garden for the formation of a Pinetum. This included the ground formerly bounded by a wire fence on which the Palm House now stands, and to the north, west, and south of it, Smith (*Records*, p. 291) says:—"The area was planted with conifers without any special arrangement." Many of these still remain and have attained a considerable size; one of the most conspicuous is the fine specimen of *Pinus monticola*, now 56 feet high.

Kew owes its existing Pinetum to Sir Joseph Hooker, who has always taken a peculiar interest in this ancient and striking group of plants. A visit to Syria in 1860 enabled him to study the Cedar of Lebanon in its native locality. Perhaps one of the most interesting achievements of the late Turkish Ambassador, Rustem Pacha, was his successful efforts, while Governor of Northern Syria, to preserve what was left of the ancient grove.

In 1877 Sir Joseph Hooker's interest in Conifers was one of the main influences which induced him to undertake an extensive journey in Western North America. He brought back a rich harvest of specimens which were deposited in the Kew Museum.

The Kew Pinetum has been carefully developed on the lines which Sir Joseph Hooker laid down. These are sufficiently indicated in the following extract from his Report for 1872 (pp. 4-5).

“*Pinetum*.—This, which is by far the most important and extensive collection in the grounds, is now all but completed. In my Report for 1871 I stated that the genera *Abies*, *Picea*, and a few others had been planted along the new walk on the south side of the Lake. These extend for 160 yards on both sides of the path, and are now succeeded by the collection of *Pinus* proper, which extends from the termination of *Abies* to the Isleworth entrance (340 yards), and thence along the lined-out path (100 yards) that leads to the Sion vista. The collection of *Pinus* proper also extends 100 yards up the new path skirting the Queen’s Cottage grounds, where it is succeeded by the collection of Yews, Cypressess, *Retinisporas*, *Taxodiums*, *Thuyas*, and smaller American and Japanese genera.

“The Juniper collection is planted on either side of an avenue leading through the woods from the Lake to King William’s Temple, and extends for 200 yards.

“The classified and named Pinetum thus extends along nearly 2,000 yards of path and avenue, representing double that length, or two and a quarter miles of made soil, beds, and plantations, except where interrupted by old trees.


“The plants are throughout so arranged that the Old World species are as far as possible placed opposite to the American species of the same genera, and there are

on the average 3-12 specimens of each species or conspicuous variety, placed in groups. The number of specimens is about 1,200, all I believe correctly named, with the exception of some doubtful ones. Almost every species that can be grown in the open air in this country is represented. Very few have been bought, the majority being plants procured by exchange and correspondence with different parts of the world, and through the liberality of various eminent nurserymen.

"Whenever possible, the specimens in the old Pinetum have been transplanted to this, in most cases with apparent success, but of this there is no assurance till the spring is over. The specimen Pines in the Botanic Garden have not been removed."

It is only necessary to add that at the end of a quarter of a century the original plan has met with as much success as could be expected, looking at the great variety of species which it is attempted to grow under almost uniform conditions. A barren and arid soil has been congenial to some groups and fatal to others. Pines have on the whole prospered, while Spruces and Silver Firs have languished. In the latter case the maintenance of a collection illustrating Conifers as a whole can only be effected by constantly renewing it with young plants. As soon as these reach any size, they appear, under the conditions to which they are exposed at Kew, inevitably to die. It may be interesting to mention a few of the species which flourish on the Kew soil.

Ginkgo biloba (Maidenhair Tree) has already been referred to. In Japan this remarkable tree, a last



representative of one of the most ancient types of plants, is only found in the precincts of temples, where it has been almost certainly planted. Being deciduous it tolerates the neighbourhood of towns, and it is remarkable that it has not been more frequently planted in our parks. But its growth is slow.

Sciadopitys verticillata (Umbrella Pine) is represented by a vigorous specimen.

Taxodium distichum (Deciduous Cypress) bids fair to form a conspicuous feature on the islands in the Lake.

Cedrus atlantica (Atlas Cedar) grows with great rapidity at Kew. The Deodar (*Cedrus Deodara*), on the other hand, has greatly disappointed the expectations formed of it. The most shapely and graceful specimen which Kew possessed, 45 feet in height, stood on the west side of the Pagoda Vista, between the Palm House and King William's Temple. It was unfortunately destroyed by lightning on August 10th, 1895. (*Kew Bulletin*, 1895, p. 235.)

Larix europaea (Larch) grows well at Kew. Scattered through the woods are many fine specimens, the wood of which is of excellent quality.

Abies brachyphylla, from Japan, grows with great rapidity, and promises to be one of the most successful additions to the Pinetum from that country.

Pinus Coulteri is represented by a very fine specimen near the Cactus House (No. V.).

Pinus Laricio (Corsican Pine) has already been referred to.

Pinus excelsa (Bhotan Pine) is represented by numerous vigorous specimens.

Pinus monticola has already been referred to.

Of the specimen trees in the Botanic Garden some have been already mentioned. Perhaps one of the most notable was the first specimen of the Chili Pine (*Araucaria imbricata*), the history of which is given in the *Kew Bulletin* for 1893 (pp. 24, 25). It died, and was removed in the autumn of the preceding year.

Several of the tender Conifers grown in the Temperate House are fine specimens of some age.

Agathis australis (Kauri Pine) was introduced to Kew in 1838 by "Sir William Symonds, then Surveyor-General of the Navy" (Smith, *Records*, p. 289).

Agathis robusta, according to Smith (*Records*, p. 290), was introduced to Kew in 1852, and grew freely in the Palm House. It was subsequently removed into the Temperate House, the conditions of which seem to suit it even better.

Araucaria Bidwillii (Bunya Bunya) was brought to this country in 1846 by Mr. T. Bidwill, who "was superintendent *pro tem.* of the Sydney Botanic Gardens" (Smith, *Records*, p. 67). It fruited in 1873.

Araucaria Cunninghamii (Moreton Bay Pine) was discovered by Allan Cunningham in Queensland (probably about 1826), who forwarded plants to Kew, of which the existing specimen is the survivor. Some years ago it was much disfigured by a gust of wind

which carried off about 25 feet of the top. The stump was trimmed, and a new leader was speedily produced, which eventually restored the symmetry.

Araucaria excelsa (Norfolk Island Pine), a native of Norfolk Island, according to Smith (*Records*, p. 66), introduced to Kew from New South Wales in 1793, by Governor Phillips (first Governor of New South Wales). The necessity for providing adequate accommodation for this and other striking plants led to the erection of the Temperate House, to which they were transferred in 1863. The habit of the specimen at Kew, which is now more than a century old, is a good deal altered (and perhaps improved) by the pruning necessary to keep it within bounds, even in its present position.

Kew, March, 1896.

PREFACE TO SECOND EDITION.

THE first edition (1896) of the Hand-list of Coniferae grown in the Kew Arboretum has been for some time exhausted.

It is now republished after having been carefully revised and enlarged by the addition of the names of numerous species and varieties which have been added to the collection since the first edition was prepared. For the revision I am indebted to Dr. Masters, F.R.S.

The number of Coniferous plants now enumerated includes 246 species and 451 varieties, or some 700 "sorts" in all.

In the first edition it was stated (p. 16) that *Ginkgo biloba* "is apparently nowhere known in the wild state." Several fine specimens have since been found by Mrs. Bishop in the magnificent forests which surround the sources of the Great Gold river and the smaller Min, in Western China, and also in the forests of Central Yesso, Japan. (*Journ. Linn. Soc. Bot.*, xxvi. 547.)

The following measurements of exceptional specimens have been made by Mr. W. J. Bean, the Assistant Curator. Those marked with a † exceed the dimensions recorded in the report of the Royal Horticultural Society's Conifer Conference in 1892 :—

† *Abies brachyphylla* ; in collection, 39 feet high ;
2 feet girth.

Agathis australis ; in temperate house, 31 feet high ;
1 foot 2 inches girth.

Agathis robusta ; in temperate house, 39 feet high ;
1 foot 8 inches girth.

Araucaria Bidwillii ; northern half of temperate
house ; girth 3 feet 7 inches ; present height
48 feet, but has been cut down.

Araucaria Cookii ; in temperate house, 30 feet
6 inches high ; 1 foot 4 inches girth.

Araucaria Cunninghamii ; in temperate house,
girth 3 feet ; has been lowered several times,
present height 47 feet.

Araucaria excelsa ; in temperate house, 48 feet high
(before the top was removed 53 feet high) ; 3 feet
7 inches girth.

Cedrus atlantica ; there are specimens in Kew
between 60 feet and 70 feet high.

* *Cedrus Libani* ; several fine specimens in Kew ;
the best, probably, is the one terminating a short
vista N.W. of the Palm House ($\frac{7}{8}$ on key plan),
69 feet high ; 14 feet 2 inches girth.

Cupressus macrocarpa ; near Lily pond, 49 feet high ;
5 feet 4 inches girth.

† *Ginkgo biloba* ; near No. 3 Fernery, 61 feet high ;
9 feet 2 inches girth (at 2 feet 6 inches from
ground).

* Except where otherwise stated the girth of the trunk is taken at
3 feet from the ground.

† *Larix europaea*, a dead tree felled in wood near Temperate House, November, 1902, was 105 feet long as it fell, a small portion, estimated at 5 feet or 6 feet, had previously been blown off the top so that at its prime it must have been at least 110 feet high.

Picea Omorica; this spruce is one of the most promising in Kew, a tree about 14 years old, is now 17 feet 6 inches high; 11 inches girth.

Pinus bungeana; in collection, 20 feet high; 1 foot 8 inches girth.

† *Pinus Coulteri*; near Succulent House, 54 feet high; 7 feet 5 inches girth.

Pinus excelsa; on lawn near Victoria Gate, 62 feet high; 7 feet 8 inches girth.

Pinus flexilis; in collection near Isleworth Gate, 31 feet high; 2 feet 6 inches girth; has produced cones for several years.

† *Pinus lambertiana*; in collection near Lily Pond, 63 feet high; 4 feet 7 inches girth.

† *Pinus Laricio*; near main entrance, 86 feet high; 9 feet 3 inches girth.

† *Pinus Laricio* var. *pallasiana*; in collection, 60 feet high; 7 feet girth.

Pinus monticola; on lawn N.W. of Water-lily House; 63 feet high; 5 feet 1 inch girth.

Pinus palustris; in collection, 19 feet high; 8 inches girth.

† *Pinus Pinaster*; near Old Oak Avenue, 71 feet high; 7 feet 8 inches girth.

† *Pinus Pinea* ; near Director's Office, 31 feet high ;
7 feet 7 inches girth ; 46 feet diameter.

† *Pinus sabiniana* ; in collection, 55 feet high ; girth
8 feet 2 inches (at 18 inches from ground).

Pinus Strobus ; in Rhododendron Dell, 74 feet high ;
6 feet 2 inches girth ; one of several old trees now
decaying.

Pinus sylvestris ; near Pagoda, 79 feet high ; 7 feet
3 inches girth.

Pseudolarix Kaempferi ; 25 feet high ; 2 feet 4 inches
girth.

† *Sciadopitys verticillata* ; in collection, 14 feet
9 inches high ; 1 foot 4 inches girth.

Sequoia sempervirens ; in collection, 66 feet high,
8 feet 8 inches girth. The top of this tree was
blown off some years ago, and although a new and
vigorous leader has been formed the tree is not so
high as formerly.

W. T. T. D.

Kew, April, 1903.

TAXACEAE.

Tribe I.—Salisburineae.

Ginkgo biloba, *L.* Veitch Manual ed. 1, 313, f. 63 ; ed. 2, 107 f. China. "The Maidenhair tree."

Salisburia adiantifolia, *Salisb.*

Var. *fastigiata*.

Var. *macrophylla laciniata*.

Var. *pendula*.

Var. *triloba*.

Var. *variegata*.

Cephalotaxus drupacea, *Sieb. & Zucc.* Fl. Jap. ii. tt. 130, 131. Japan.

C. Fortunei, *Hook.* Bot. Mag. t. 4499 ; *Beissner Handbuch* 182, f. 45. Northern China.

Var. *brevifolia*, *Hort.?*

Var. *longifolia*, *Hort.?*

Var. *robusta*.

C. Oliveri, *Mast.* Icones Plantarum t. 1933, Gard. Chron. 1903, xxxiii. 227, f. 93. China.

C. pedunculata, *Sieb. & Zucc.* Fl. Jap. ii. t. 132. Veitch Manual ed. 2, 115, f. 50 ; *Beissner Handbuch* 179, f. 44.

Taxus Harringtonia, *Knight & Perry.*

* Those species marked with an asterisk are grown under glass.

Cephalotaxus pedunculata—cont.

Var. *fastigiata*, *Carr.* Rev. Hort. 1863, 349, f. 36.

C. *Buergeri*, *Miq.*

Podocarpus koraianus, *Hort.*

Taxus japonica, *Hort.*

Torreya californica, *Torr.* Sargent Silva x. t. 513. California. "California Nutmeg."

T. *Myristica*, *Hook.* Bot. Mag. t. 4780; Gard. Chron. 1884, xxii. 681, f. 116.

T. *nucifera*, *Sieb. & Zucc.* Fl. Jap. ii. t. 129. Japan.

T. *taxifolia*, *Arn.*; Beissner Handbuch 187, f. 46. Sargent Silva x. t. 512. W. Florida. "Stinking Cedar."

Tribe II.—Taxineae.*Sub-tribe I.—TAXEAE.*

**Phyllocladus rhomboidalis*, *Rich.* Conif. t. 3, f. 2. Tasmania. "Adventure Bay Pine."

YEWS.

Taxus baccata, *L.*; Beissner Handbuch 168, f. 43; Eng. Bot. ed. 3. t. 1384; Benth. & Trim. Medic. Plants t. 253. Europe and Northern Asia. "Common Yew."

Var. *adpressa*, *Carr.*

T. *adpressa*, *Gordon.*

T. *brevifolia*, *Hort.* (not *Nutt.*)

T. *sinensis tardiva*, *Knight.*

Var. *adpressa aurea.*

Taxus baccata—cont.**Var. adpressa stricta.**T. adpressa erecta, *Hort.*T. adpressa fastigiata, *Hort.*T. adpressa stricta, *Hort.*T. baccata verticillata, *Hort.***Var. adpressa variegata.****Var. albo-variegata, Spaeth.****Var. argentea.****Var. aurea.****Var. aureo-variegata.****Var. Barroni.****Var. brevifolia.****Var. cheshuntensis, Gord.****Var. Dovastoni, Carr. Rev. Hort. 1861, 175, f.
"Westfelton Yew."**T. Dovastoni, *Hort.*T. pendula, *Hort.*T. umbraculifera, *Hort.***Var. Dovastoni aureo-variegata.****Var. elegantissima.****Var. epacridioides.****Var. erecta, Loud.**

T. baccata stricta.

T. baccata Crowderi.

Var. ericoides.

T. baccata empetrifolia.

T. baccata microphylla.

T. baccata Mitchelli.

Taxus baccata—cont.

Var. *expansa*, *Carr.*

Var. *fastigiata*, *Loud*; Veitch Manual ed. 2, 141, f. 52.
"The Irish Yew."

T. *hibernica*, *Hook.*

Var. *fastigiata argentea*.

Var. *fastigiata aurea*, *Standish*.

T. *hibernica aurea*.

Var. *fastigiata Standishii*.

Var. *Fisleri*.

Var. *Foxi*.

Var. *fructu luteo*.

Var. *glauca*, *Carr.*

T. *baccata subglaucescens*, *Jacques*.

T. *baccata nigra*. *Hort.*

Var. *gracilis pendula*.

Var. *horizontalis*, *Knight*.

T. *disticha*, *Wender*.

Var. *horizontalis elegantissima*.

Var. *imperialis*.

Var. *Jacksoni*.

Var. *nana*, *Knight & Perry*.

Var. "Neidpath."

Var. *procumbens*, *Lodd*.

Var. *pyramidalis*.

Var. *pyramidalis variegata*.

Var. *recurvata*, *Carr*.

T. *recurvata*, *Lawson*.

Taxus baccata—cont.Var. *semperaurea*.Var. *Sieboldi*.Var. *sinensis*, *Knight*.Var. *Washingtoni*.T. *canadensis* *Washingtoni*, *Hort*.T. *brevifolia*, *Nutt*. Sylva t. 108 ; Sargent Silva x. t. 514,
Western N. America. "Californian Yew."T. *canadensis*, *Willd*. Canada and N. Eastern United
States. "Canadian Yew."Var. *aurea*.T. *cuspidata*, *Sieb. & Zucc*. Fl. Jap. ii. t. 128. Mountains
of Japan. "Japanese Yew."T. *baccata cuspidata*, *Carr*.Var. *compacta*.**Dacrydium araucaroides*, *Brongn. & Gris*. New Caledonia.**D. cupressinum*, *Soland.*; Kirk Forest Flora of New
Zealand tt. 18, 19. New Zealand.**D. elatum*, *Wall.*; Blume Rumphia iii. tt. 172. b, 172. c.
Malaya.**D. Franklini*, *Hook. f.* Flora Tasmaniae t. 100. Tasmania.*Sub-tribe II.—PODOCARPEAE.**Podocarpus alpina*, *R. Br.* Tasmania.**P. amara*, *Blume* Rumphia iii. t. 170. Java.**P. argotaenia*, *Hance*. China.*P. insignis*, *Hemsl.*

- **Podocarpus canaliculata*, *Hort.* Origin uncertain.
- **P. chilina*, *Rich.* Conif. t. 1, f. 1. Andes of Chili.
P. andina, *Hort.* (not *Poepp.*).
- **P. cupressina*, *R. Br.* Benn. Pl. Jav. Rar. t. 10. Burma,
 Malaya.
- **P. dacrydioides*, *A. Rich.* Kirk Forest Flora of New
 Zealand tt. 31, 32. New Zealand.
- **P. elongata*, *L'Herit.*; Engler Pflanzenw. Ost.-Afr. t. i.
 E. Africa, &c.
- **P. ferruginea*, *D. Don.*; Kirk Forest Flora of New
 Zealand t. 84. New Zealand.
- **P. japonica*, *Sieb.* Japan.
- **P. macrophylla*, *D. Don.*; Sieb. & Zucc. Fl. Jap. ii. tt. 133,
 134. Japan.
- **P. Nageia*, *R. Br.*; Sieb. & Zucc. Fl. Jap. ii. t. 135.
 Japan.
- *Var. *rotundifolia*.
- **P. neriifolia*, *D. Don.*; Bot. Mag. t. 4655. Himalaya.
- **P. nubigena*, *Lindl. & Paxt.* Flower Garden 1851, 162.
 f. 128; Gard. Chron. 1891, x. 171, f. 23. Chili.
- **P. pectinata*, *Panch.* (ex. *Brongn. & Gris.*); Bot. Mag.
 t. 7854. New Caledonia.
- Dacrydium Pancheri*, *Brongn. & Gris.*
- **P. purdieana*, *Hook.* Icones Plantarum t. 624. Jamaica.
- **P. salicifolia*, *Klotzsch & Karst.* Colombia.

***Podocarpus Totara**, *G. Benn.* ; Kirk Forest Flora of New Zealand t. 115. New Zealand.

Some of the above-mentioned species may really belong to *Prumnopitys*, but until they flower and can be critically examined and determined it seems better to include them provisionally under *Podocarpus*.

Prumnopitys elegans, *Philippi* ; Veitch Manual ed. 2, 154, ff. 53-4. Chili.

Podocarpus andina, *Poepp.*

Stachycarpus andina, *Van Tieghem.*

***P. spicata**, *Mast.* New Zealand.

Podocarpus spicata, *R. Br.* ; Kirk Forest Flora of New Zealand, tt. 4, 5.

***P. taxifolia**, *Mast.* Andes.

Podocarpus taxifolia, *H. B. K.* Nov. Gen. et Sp. ii. t. 97.

Taxodium bogotense, *Hort.*

Saxegothea conspicua, *Lindl.* ; Gard. Chron. 1889, v. 782, f. 125. Veitch Manual ed. 2, 159, f. 55. Southern Chili. "Prince Albert's Yew."

***Microcachrys tetragona**, *Hook. f.* Bot. Mag. t. 5576. Tasmania.

PINACEAE.

Tribe I.—Cupressineae.

Sub-tribe I.—JUNIPERINAE. “Junipers.”

†SABINA.

- **Juniperus barbadensis*, *L.*; Sargent Silva xiv. t. 738.
Southern United States. “Red Cedar.”

J. bermudiana, *Lunan*.

J. virginiana, (in part) various authors.

J. virginiana var. *australis*, *Endl.*

J. virginiana var. *barbadensis*, *Gordon*.

J. virginiana var. *bermudiana*, *Vasey*.

- **J. bermudiana*, *L.*; Hemsl. Gard. Chron. 1883, xix. 657,
f.f. 105-6; Sargent, Garden and Forest, 1891, 289,
f.f. 51-2. Bermuda.

J. fragrans, *Hort*.

- J. californica*, *Carr.*; Rev. Hort. 1854, 353. f. 21. Sargent
Silva x. t. 517. Utah, Arizona, California.

- J. chinensis*, *L.*; Sieb. & Zucc. Fl. Jap. ii. tt. 126, 127;
Beissner Handbuch, 119, f. 29. Himalaya, China,
Japan.

J. Cbiancae, *Vis*.

J. canadensis aurea, *Hort*.

J. densa, *Gord*.

Juniperus chinensis—cont.

J. flagelliformis, *Hort.*

J. jakobiana, *Hort. Jakob-Makoy.*

J. japonica, *Carr.*

J. reevesiana, *Hort.*

J. squamata, *Hort. Edinb.*

J. struthiacea, *Knight & Perry.*

J. Thunbergii, *Hook. & Arn.*

Var. albo-variegata.

Var. aurea.

J. japonica, *Carr. var. aurea, Hort.*

Var. glauca.

Var. pfitzeriana, *Spaeth.*

Var. Smithii.

Var. variegata.

J. excelsa, *Bieb.* Asia Minor, Taurus. "Greek Juniper."

J. phoenicea, *Pallas Fl. Ross. t. 64 (not L.).*

Var. Perkinsii.

Var. stricta.

Var. venusta.

***J. flaccida**, *Schlecht.* ; Sargent Silva x. t. 519. Mountains of Mexico.

J. macropoda, *Boiss.* Himalaya.

J. excelsa, *Brandis (not Bieb.).*

***J mexicana**, *Schiede.* Mountains of Mexico.

Juniperus occidentalis, *Hook* ; Sargent Silva x. t. 521.
North Western America.

J. dealbata, *Hort. aliq.* (not *Loud.*).

J. pyriformis, *Lindl.*

Chamaecyparis Boursieri, *Decne.* (not *Carr.*).

Var. *Burkei*.

Var. *fragrans*.

J. pachyphloea, *Torr.* ; Sargent Silva x. t. 520. New Mexico, Arizona.

J. phoenicea, *L.* ; Laguna Fl. Forest. Esp. t. 14. Mediterranean region.

J. bacciformis, *Carr.*

J. Lycia, *L.* (not *Pall.*).

J. tetragona, *Moench.*

Var. *turbinata*.

J. dealbata, *Hort. aliq.*

J. oophora, *Kunze.*

J. pseudo-Sabina, *Fisch. & Mey.* Siberia, Himalaya, Tibet.

J. recurva, *Buch-Ham.* ; Gard. Chron. 1883, xix. 468, f. 69 ;
Veitch Manual ed. 2, 186, f. 57. Nepal, Cashmir.

Var. *pendula*.

Var. *squamata*, *Parl.*

J. densa, *Gord.*

J. excelsa, *Bieb.* var. *nana*, *Endl.*

J. religiosa, *Royle.*

J. squamata, *Buch.-Ham.*

Juniperus Sabina, L.; Beissner Handbuch, 108, f. 27.
Mountains of Europe and N. America. "Savin.

J. excelsa, Willd. (not *Bieb.*).

J. Lycia, Pall. (not *L.*).

Var. *humilis, Endl.*

Var. *procumbens, Pursh.* N. America. "Waukegan
Juniper."

Var. *prostrata, Loud.* "Carpet Juniper."

J. hudsonica, Lodd.

J. prostrata, Pers.

J. repens, Nutt.

Var. *tamariscifolia, Ait.* "Spanish Savin."

Var. *variegata.*

J. scopulorum, Sargent Silva xiv. t. 739. W. United
States. "Red Cedar."

J. excelsa, Pursh (not *Bieb.*).

J. occidentalis, Porter (not *Hook.*).

J. virginiana, Torrey (not *Lindl.*).

J. virginiana var. *montana, Vasey.*

J. sphaerica, Lindl., Lindl. & Paxt. Flow. Gard. 1850,
58, f. 35. North China.

J. chinensis var. *Smithii, Loud.*

J. Fortunei, Van Houtte.

Var. *glauca, Gord.*

J. Shephardi, Hort.

J. Sheppardi, Hort.

J. tetragona, Schlecht. Mountains of Mexico. "Rock
Cedar."

J. sabinoides, Sargent Silva x. t. 523.

Juniperus thurifera, *L.*; Veitch Manual ed. 1, 271, f. 60; ed. 2, 192, f. 59. Spain, Portugal, Algiers. "Incense Juniper."

J. bonatiana, *Vis.*

J. cinerea, *Carr.*

J. foetida var. *thurifera*, *Spach.*

J. hispanica, *Lam.*

J. sabinoides, *Endl.*

J. utahensis, *Lemmon*; Sargent Silva x. t. 518. Utah, Colorado.

J. californica var. *utahensis*, *Engelm.*

J. occidentalis, *Watson* (not *Hook.*).^{*}

J. occidentalis var. *utahensis*, *Kent.*

J. virginiana, *L.* Sargent Silva x. t. 524. North-east America. "Red Cedar."

Var. *argentea*.

Var. *aureo-spica*, *Hesse.*

Var. *aureo-variegata*.

Var. *bedfordiana*, *Knight.*

J. bedfordiana, *Hort.*

J. gossainthaneana, *Lodd.*

J. gracilis, *Hort.*

• *J. virginiana gossainthaneana*, *Carr.*

Var. *Cannartii*.

Var. *Chamberlainii*, *Carr.*

Var. *cinerascens*, *Carr.*

Var. *clanbrassiliana*.

Var. *compacta*.

Var. *elegantissima*.

Var. *glauca*, *Carr.*

Juniperus virginiana—*cont.*Var. *horizontalis*.Var. *humilis*.Var. *kosteriana*.Var. *pendula*, *Carr.*Var. *pyramidalis glauca*.Var. *Schottii*, *Gordon*.J. *virginiana viridis*, *Hort.*Var. *Smithii pendula*.Var. *tripartita*.Var. *viridis*.Var. *viridis pendula*.

†† OXYCEDRUS.

*J. *Cedrus*, *Webb*. Mountains of the Canaries.J. *communis*, *L.*; Beissner Handbuch 134, f. 31; Sargent Silva x. t. 516. Europe, Siberia. "Common Juniper."Var. *alpina*.J. *alpina*, *S. F. Gray*.J. *canadensis*, *Lodd*.J. *nana*, *Willd.*Var. *alpina aurea*.J. *canadensis aurea*.Var. *aurea*.Var. *fastigiata*.J. *hibernica*, *Gord*.J. *hispanica*, *Booth. ex Endl.*J. *suecica*, *Mill.*

Juniperus communis—cont.**Var. glauca.****Var. hemisphaerica.** "Hedgehog Juniper."*J. hemisphaerica*, *Presl.**J. nana* var. *hemisphaerica*, *Carr.***Var. oblonga.***J. oblonga*, *Bieb.***Var. reflexa.***J. communis* var. *caucasica*.*J. oblonga*, *Gord.***J. henryana**, *R. Br. Campst.* Gard. Chron. 1873, 8. North-Western America.**J. litoralis**, *Maxim.* Japan.*J. conferta*, *Parl.***J. macrocarpa**, *Sibth.*; *Reichb. Ic. Fl. Germ.* xi. t. 537. Mediterranean Region.*J. Oxycedrus*, *L. Herb. nec Sp. Pl.**J. neaboriensis*, *Hort.**J. sphaerocarpa*, *Antoine.**J. umbilicata*, *Gren. & Godr.**J. Willkommii*, *Antoine.***J. Oxycedrus**, *L.*; *Rich. Conif.* 39, t. 6; *Köhler Med.-Pflanz.* iii. 79. South Europe, &c.*J. biebersteiniana*, *C. Koch.**J. rufescens*, *Link.**J. tenella*, *Antoine.***J. rigida**, *Sieb. & Zucc. Flor. Jap.* ii. 109, t. 125. Mountains of Japan.**J. taxifolia**, *Hook. & Arn.* China and Japan.*J. oblonga pendula*, *Hort.*

††† ARCEUTHOS.

Juniperus drupacea, *Labill.*; Gard. Chron. 1896, xix. 519, f. 80; Veitch Manual ed. 2, 173, f. 56. Mountains of the Levant. "Syrian Juniper."

J. rufescens, *Hort. Edinb.*

Arceuthos drupacea, *Antoine*.

Sub-tribe II.—CALLITRINAE.

**Tetraclinis articulata*, *Mast.* Algiers, Marocco.

Callitris quadrivalvis, *Rich.* Conif. t. 8, f. 1; Loudon Encycl. 1072, f. 1995; Köhler Med.-Pflanz. ii. t. 129.

Frenela Fontanesii, *Mirbel.*

Thuya articulata, *Vahl.*

**Callitris australis*, *Sweet.* Australia.

Frenela australis, *R. Br.*; Hook. f. Fl. Tasman. t. 97.

**C. calcarata*, *R. Br.* Australia.

Frenela Endlicheri, *Parl.*

**C. cupressoides*, *Schrad.* S. Africa.

**C. Parlatoresii*, *F. Muell.* Australia.

Frenela Parlatoresii, *F. Muell.*

**C. rhomboidea*, *R. Br.*; Rich. Conifer. 47 t. 18. Australia.

Frenela rhomboidea, *Endl.*

**C. robusta*, *R. Br.* Australia.

Frenela robusta, *A. Cunn.*

**Var. verrucosa*, *Benth. & F. Muell.*

C. verrucosa, *R. Br.*

- **Actinostrobus pyramidalis*, *Miq.*; Hook. *Icones Plantarum* t. 1272. West Australia.
- **Widdringtonia Whytei*, *Rendle* in *Trans. Linn. Soc. Bot. Ser. 2. iv. 60. t. 9. Mountains of Central Africa.*
 "The Milanji Cypress."

Sub-tribe III.—THUYNÆ.

- **Fitzroya Archeri*, *Benth. & Hook. f.* Tasmania.
Diselma Archeri, *Hook. f.* Fl. Tasman. t. 98.
- **F. patagonica*, *Hook. f.* Bot. Mag. t. 4616. Mountains of Western Patagonia, Chili, Valdivia.
Widdringtonia glauca, *Hort.*

† EUCUPRESSUS.—"Cypresses."

- **Cupressus Benthami*, *Endl.*; Journ. Linn. Soc. Bot. xxxi. 341, f. 15. Mountains of Mexico and Guatemala.
- C. aromatica*, *Gord.*
C. braziliensis, *Hort.*
C. Coulteri, *Forbes.*
C. Ehrenbergii, *Kunze.*
C. elegans, *Hort.*
C. excelsa, *Scott.*
C. Hugeli, *Hort.*
C. karwinskyana, *Regel.*
C. lusitanica, *Carr.* (not *Mill.*).
C. Skinneri, *Hort.*
C. thurifera, *Schlecht.*
C. uhdeana, *Hort.* (in part).
- Var. *arizonica*.
Cupressus arizonica, *Greene.*

**Cupressus funebris*, *Endl.*; Gard. Chron. 1850, 439, f. 31.
China.

C. amoena, *C. Koch.*

C. pendula, *Abel* (not *Thunb.*).

*Var. *glauca*.

C. kashmiriana, *Hort.*

C. goveniana, *Gord.*; Journ. Hort. Soc. London 1849, iv.
295, f. Sargent Silva x. t. 527. California.

C. californica, *Carr.*

**C. lusitanica*, *Mill.*; Veitch Manual ed. 2, 211, f. 60.
Locality unknown. "The Cedar of Goa."

C. glauca, *Lam.*

C. pendula, *L'Herit.*

C. uhdeana, *Gord.* (in part).

C. macnabiana, *A. Murr.*; Veitch Manual ed. 2, 213, f.
Sargent Silva x. t. 528. Mountains of California.

C. glandulosa, *Hook.*

C. macrocarpa, *Hartw.*; Veitch Manual ed. 2, 215, ff. 62-3.
Sargent Silva x. t. 525. California, near the coast.
"Monterey Cypress."

C. Hartwegii, *Carr.*

C. lambertiana, *Gord.*

Var. *Crippsii*.

Var. *fastigiata*.

Var. *guadeloupensis*.

Cupressus guadeloupensis, *S. Wats.*

Var. *lutea*.

C. pygmaea, *Sargent*, Silva xiv. t. 740; California.

C. goveniana var. *pygmaea*. *Lemmon.*

C. goveniana, *Sargent* (partly).

Cupressus sempervirens, L.; Beissner Handbuch 101, f. 26;
Reichb. Ic. Fl. Germ. xi. t. 534. Levant.

C. horizontalis, Mill.

C. patula, Spad.

C. sempervirens var. *horizontalis, Gord.*

C. Tournefortii, Audib.

Var. fastigiata.

C. ambigua, Hort.

C. bedfordiana, Hort.

C. conoidea, Spad.

C. fastigiata, DC.

C. pyramidalis, Targ. Tozz.

Var. flagelliformis.

Var. globulifera.

Var. indica, Royle.

C. australis, Low.

C. doniana, Hort.

C. Roylei, Carr.

C. whitleyana, Hort.

Var. retrofracta.

Var. thuiaefolia.

C. torulosa, D. Don.; Veitch Manual ed. 2, 233, f. 71;
Lawson Pinet. Brit. ii. t. 35. W. Himalaya.
"Tufted Cypress."

C. Tournefortii, Tenore (not *Audib.*).

***Var. corneyana.** Locality unknown.

C. corneyana, Gord.

Var. majestica.

††CHAMAECYPARIS.

Cupressus lawsoniana, A. Murr. Sargent Silva x. t. 531 ;
Bot. Mag. t. 5581. North California, Oregon. "The
Lawson Cypress."

Chamaecyparis Boursieri, Carr.

C. lawsoniana, Parl. ; Beissner Handbuch 72, f. 17.

The varieties, which are very numerous, admit of a rough classification according to their most conspicuous characters. Many of them lose their peculiar form as they increase in age ; they also vary in their degree of hardness.

Variations in Colour of Foliage.

Var. albo-maculata.

Var. albo-picta.

Var. albo-spica.

Var. albo-variegata.

Var. argentea.

Var. argenteo-variegata.

Var. aurea.

Var. aurea nova.

Var. aureo-variegata.

Var. beissneriana, P. Smith.

Var. glauca.

Var. glauca pendula.

Var. gracilis.

Var. gracilis aurea.

Var. lutea.

Cupressus lawsoniana—cont.**Var. ochroleuca.****Var. Rosenthali.****Var. Silver Queen.****Var. versicolor.****Var. Westermanni.****Variations in Form and Habit.****1.—*Columnar or fastigate.*****Var. Allumi.****Cupressus lawsoniana var. Fraseri.****Var. contorta.****Var. erecta filiformis.****Var. erecta viridis.****Var. erecta viridis argentea.****Var. ericoides.****Var. Wisselii.****2.—*Spreading.*****Var. amabilis.****Var. Bowleri.****Var. californica.****Var. darleyensis.****Var. fragrans.****Var. fragrans argentea.****Var. intertexta.****Var. juniperina.**

Cupressus lawsoniana—*cont.*Var. **Krameri.**Var. **lycopodioides.**Var. **patula.**Var. **Smithii.**Var. **Youngi.****3.—*Pendulous.***Var. **glauca pendula.**Var. **gracilis gracillima.**Var. **gracilis pendula.**Var. **pendula vera.****4.—*Globose, dwarf varieties.***Var. **compacta.**Var. **minima glauca.**Var. **nana.**Var. **Shawii.**

C. nootkatensis, Lamb. Sargent Silva x. t. 530. Oregon,
British Columbia. "Yellow Cypress."

Chamaecyparis nutkaensis, Spach; *Beissner Handbuch*
81, f. 19.

Thuiopsis borealis, Hort.

T. troubetskoyana, Hort.

T. Tschugatskoyii, Hort.

Var. **albo-variegata.**Var. **argenteo-variegata.**Var. **aureo-variegata.**

Cupressus nootkatensis—cont.

Var. aureo-viridis

Var. compacta.

Var. glauca.

Var. gracilis.

Var. lutea.

Var. nidifica, *Rovelli*.

Var. pendula.

Var. variegata.

**C. obtusa, C. Koch; Veitch Manual ed. 2, 220, f. 64
Mountains of Japan.**

Chamaecyparis obtusa, *Sieb. & Zucc.*

Retinispora obtusa, *Sieb. & Zucc.* Fl. Jap. ii. t. 131.

Var. pygmaea.

Thuya obtusa var. pygmaea, *Hort.*

Chamaecyparis obtusa var. pygmaea, *Hort.*

Stages of growth and varieties of *C. obtusa* all known as
Retinisporas (often spelt Retinospora) in gardens.

Var. aurea.

Var. compacta.

Var. erecta viridis.

Var. filicoides; Veitch Manual ed. 2, 221, f. 65.

Retinispora nobleana, *Hort.*

Var. gracilis.

Var. gracilis aurea.

Var. Keteleeri.

Var. lycopodioides.

Var. magnifica.

Cupressus obtusa—cont.Var. *nana*.Var. *nana aurea*.Var. *nana gracilis*.Var. *tetragona aurea*.Var. *variegata*.**C. pisifera, C. Koch.** Mountains of Japan.Chamaecyparis pisifera, *Sieb. & Zucc*; Veitch Manual ed. 2, 224, f. 67; Beissner Handbuch 84, f. 20.Retinispora pisifera, *Sieb. & Zucc.* Fl. Jap. ii. t. 122.Stages of growth and varieties of *C. pisifera*. all called Retinispora in gardens.Var. *albo picta*.Var. *darleyensis*.Var. *filifera*, *Mast.*; Veitch Manual ed. 2, 225, f. 68.Retinispora filifera, *Gordon*.Var. *filifera aurea*.Var. *filifera variegata*.Var. *plumosa*.Var. *plumosa argentea*.Var. *plumosa aurea*.Var. *plumosa flavescens*.

Retinispora plumosa sulphurea.

Var. *squarrosa*. Veitch Manual ed. 2, 226, f. 69.Var. *squarrosa sulphurea*.**C. thyoides, L.** Sargent Silva x. t. 529. East United States.
"White Cedar."Chamaecyparis sphaeroidea, *Spach*; Beissner Handbuch p. 66, f. 13.Retinispora ericoides, *Gord.* (not *Veitch*).

Cupressus thyoides—cont.**Var. atrovirens.****Var. glauca.****Var. Hoveii.****Var. kewensis.****Var. leptoclada, Mast.****Chamaecyparis thyoides var. andeleyensis, Carr.****Var. leptoclada nana.****Var. variegata.****Var. viridis.****† EUTHUYA. —“Arborvitae.”**

Thuya occidentalis, L. ; Beissner Handbuch 34, f. 4. **Sargent Silva x. t. 532.** Canada and North-Eastern States of North America to mountains of North Carolina. “The American Arborvitae.”

T. obtusa, Moench.**T. odorata, Marsh.****T. sibirica, Hort.****Cupressus Arbor-vitae, Targ. Tozz.****Variations in Colour of Foliage.****Var. aurea.****Var. Buchanani.****Var. ellwangeriana aurea.****Var. lutea.****Var. pulverulenta.****Var. Riversii.**

• *Thuja occidentalis*—*cont.*

Var. *vervaeneana*.

T. *aurescens*.

Var. *Wagneri*, *Froebel*.

T. *columnaris*.

T. *Versmanni*.

Var. *wareana*.

T. *caucasica*, *Hort*.

Var. *wareana lutescens*, *Hesse*.

Var. *Waxen*, *Spaeth*.

Variations in Form and Habit.

Var. *Bodmeri*.

Var. *caucasica*, *Hort*.

Var. *cristata*.

Var. *densa*.

Var. *Dicksoni*.

Var. *dorkinensis*.

Var. *Douglasi*.

Var. *ellwangeriana*.

Retinispora ellwangeriana, *Hort*.

R. "Tom Thumb," *Hort*.

Var. *erecta*.

Var. *erecta viridis*.

Var. *ericoides*

Retinispora dubia, *Hort*.

Var. *flabellata*.

Var. *globosa*.

Thuya occidentalis—cont.

Var. *globosa compacta*.

Var. *Hovei*.

Var. *pendula*.

Var. *Spaethii*, *R. Smith*.

T. Ohlendorfi, *Hort*.

T. tetragona, *Hort*.

It is possible that some of these forms may belong to *T. plicata*, *D. Don*, whilst some of those allotted to the latter may be forms of *T. occidentalis*.

†† **MACROTHUYA.**

T. japonica, *Maxim* ; Gard. Chron. 1897, xxi. 259, f. 87.
Japan.

Thuya gigantea var. *japonica*, *Franch. & Sav*.

T. Standishii, *Carr*.

Thuyopsis Standishii, *Gord*.

T. plicata, *D. Don* ; Masters in Gard. Chron. 1897, xxi.
101, 213, 258, (not of gardens). North West
America. "Red" or "Canoe Cedar."

T. gigantea, *Nutt.* ; Beissner Handbuch 48 f. 7 ;
Veitch Manual ed. 2, 240, f. 72.

T. craigiana, *Hort*.

T. Lobbi, *Hort*.

T. Menziesii, *Carr*.

Var. *atrovirens*.

Var. *aurea*.

Var. *compacta*.

Var. *fastigiata*.

Var. *gracilis*.

Thuya plicata—cont.Var. *pendula*.Var. *pumila*.Var. *pyramidalis*.Var. *recurva nana*.Var. *recurvata*.Var. *semperaeurescens*.Var. *umbraculifera*.Var. *zebrina*.

††† THUYOPSIS.

T. dolabrata, *L. f.*; Gard. Chron. 1882, xviii. 556, f. 95.
Mountains of Japan.Thuyopsis *dolabrata*, *Sieb. & Zucc.* Fl. Jap. ii. tt.
119, 120; Beissner Handbuch 53, f. 9.Platyclusus *dolabrata*, *Spach*.Var. *nana*, *Sieb. & Zucc.*Thuyopsis *laetevirens*, *Lindl.*Var. *variegata*.

†††† BIOTA.

T. orientalis, *L.*; *Sieb. & Zucc.* Fl. Jap. ii. t. 118. North
China and Japan. "Chinese Arborvitae."*T. acuta*, *Moench*.*Biota orientalis*, *Endl.*; Beissner Handbuch 55, f. 10.*Cupressus Thuya*, *Targ. Tozz.**Platyclusus stricta*, *Spach*.Var. *argenteo-variegata*.*Biota orientalis* var. *argentea*, *Gord.*

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Thuya orientalis—cont.

B. orientalis var. variegata, *Endl.*

Thuya argentea, *Hort.*

T. variegata, *Hort.*

Var. athrotaxoides.**Var. aurea.**

Biota orientalis aurea nana, *Hort.*

Thuya aurea, *Hort.*

T. nana aurea, *Hort.*

T. nana compacta aurea, *Hort.*

Var. aureo-variegata.

Biota orientalis var. variegata, *Gord.*

Thuya orientalis aureo-variegata, *Hort.*

T. variegata, *Hort.*

Var. compacta.

Biota japonica, *Sieb.*

B. orientalis var. nana, *Carr.*

B. orientalis var. Sieboldi, *Endl.*

B. zuccariniana, *Sieb.*

Thuya compacta, *Hort.*

T. nana, *Hort.*

T. zuccariniana, *Hort.*

Var. decussata.

Biota orientalis var. decussata, *Beissn. & Hochst.*

Chamaecyparis decussata, *Hort.*

Frenela glauca, *Hort.* (not *Mirbel.*)

Juniperus glauca, *Hort.*

Retinispora flavescens, *Hort.*

R. juniperoides, *Carr.*

R. rigida, *Carr.*

R. squarrosa, *Hort.* (not *Zucc.*).

Thuya orientalis—cont.**Var. densa.**

Biota orientalis densa glauca *Hort.*

Var. elegantissima.

Biota elegantissima, *Hort.*

Var. ericoides.

Retinispora ericoides, *Hort.*

Var. falcata.**Var. falcata nana.****Var. falcata nova.****Var. freneloides.****Var. Froebeli.****Var. funiculata.****Var. glauca.****Var. globosa.****Var. gracilis.**

Thuya freneloides, *Hort*

T. japonica, *Hort.*

T. nepalensis, *Hort.*

Var. Hoveyii.**Var. incurvata.****Var. intermedia.**

Biota orientalis var. intermedia. *Carr.*

B. intermedia, *Hort.*

B. pendula, *Endl.* var.

Thuya intermedia, *Hort.*

Thuya orientalis—cont.**Var. meldonensis.**Biota meldonensis, *Gord.*Retinispora meldonensis, *Hort.*Thuya hybrida, *Hort.*T. meldonensis, *Hort.*T. orientalis meldonensis, *Hort.***Var. minima.**Biota orientalis minima glauca, *Hort.***Var. nepalensis.****Var. pendula.**Biota orientalis var. pendula, *Parl.*~ B. pendula, *Endl.*B. pendula var. recurvata, *Gord.*Cupressus filiformis, *Hort.*C. patula, *Pers.*C. pendula, *Thunb.*C. pendulata, *Hort.*Thuya Douglasii pendula, *Hort.*T. filiformis, *Lodd.*T. flagelliformis, *Hort.*T. orientalis var. flagelliformis, *Jacques.*T. pendula, *Lamb.***Var. pyramidalis, Endl.**Biota orientalis var. expansa, *Endl.*B. orientalis var. tatarica, *Endl.*B. tatarica, *Lindl.*Thuya australis, *Hort.*T. orientalis cupressoides, *Hort.*

Thuya orientalis—cont.

T. orientalis var. *stricta*, *Loud.*

T. orientalis var. *tatarica*, *Loud.*

T. pyramidalis, *Tenore.*

T. tatarica, *Forbes.*

Var. *semperaurea*scens.

Biota orientalis semperaurea, *Hort.*

**Libocedrus chilensis*, *Endl.*; *Gard. Chron.* 1850, 439, f.;
Rev. Hort. 1867, 410, f. 37. *Chilian Andes.*

Thuya chilensis, *D. Don*; *Hook. London Journal of Botany* ii., 199, t. 4.

L. decurrens, *Torr.*; *Veitch Manual* ed. 2, 252, f. 73;
Beissner Handbuch 28, f. 2; *Sargent Silva* x. t. 534.
 Oregon to South California on mountains near the
 sea, "Incense Cedar."

Heyderia decurrens, *C. Koch.*

Thuya craigiana, *A. Murr.*

T. gigantea, *Hort.*

Var. *compacta*.**Var. *glauca*.****Var. *nana*.****Var. *variegata*.**

**L. doniana*, *Endl.*; *Kirk Forest Flora of New Zealand*,
 tt. 82, 83. *New Zealand.*

**L. macrolepis*, *Benth. & Hook.* *Yunnan.*

Calocedrus macrolepis, *Kurz* in *Journ. Bot.* 1873, 196.
 t. 133, f. 3.

Tribe II.—Taxodinae.

Sciadopitys verticillata, *Sieb. & Zucc.* *Fl. Jap.* ii. t. 101;
Veitch Manual 202, ff. 46, 47; ed. 2, 288, f. 87.
Japan. "The Umbrella Pine."

**Athrotaxis cupressoides*, *D. Don*; Gard. Chron. 1885, xxiv. 273, f. 60; Veitch Manual ed. 2, 259, f. 75. Tasmania.

. **A. laxifolia*, *Hook.*; Gard. Chron. 1885, xxiv. 584, f. 134. Tasmania.

Athrotaxis doniana, *Hort.*

**A. selaginoides*, *D. Don.*; Gard. Chron. 1888, iv. 544. f. 79; Veitch Manual ed. 2, 262, f. 78. Tasmania.

A. gunniana, *Hort.*

Sequoia gigantea, *Torr.*; Beissner Handbuch 163, f. 41. California. "Wellingtonia," "Mammoth Tree."

Sequoia Wellingtonia, *Seem.*; Veitch Manual ed. 2, 276, f. 85; Sargent Silva x. t. 536.

Taxodium washingtonianum, *Winkl.*

Washingtonia californica, *Winkl.*

Wellingtonia gigantea, *Lindl.*; Veitch Manual 205, f. 48; Bot Mag. tt. 4777, 4778.

Var. *aurea*.

Var. *pendula*.

S. sempervirens, *Endl.*; Beissner Handbuch 158, f. 39; Sargent Silva x. t. 535. California. "Redwood."

Schubertia sempervirens, *Spach.*

Taxodium sempervirens, *Lamb.*

Var. *albo-spica*.

Var. *gracilis*.

**Glyptostrobus heterophyllus*, *Endl.* China. "Chinese Water Pine."

Taxodium heterophyllum, *Brongn.*

Cryptomeria japonica, *D. Don* ; Sieb. & Zucc. Fl. Jap. ii. tt. 124, 124b ; Beissner Handbuch 142, f. 337. Mountains of Japan and China. "Japanese Cedar."

C. Fortunei, *Otto & Dietr.*

Cupressus japonica, *L. f.* ,

Taxodium japonicum. *Brongn.*

Var. *araucarioides*.

Var. *elegans*, Veitch Manual ed. 1, 218, f. 51 ; ed. 2, 265, ff. 80-1.

Cryptomeria Veitchii, *Hort.*

Var. *elegans nana*.

Var. *Lobbi*. Veitch Manual ed. 2, 266 f.

Var. *Lobbi nana*.

Var. *pungens*.

Var. *spiralis*.

Taxodium distichum, *Rich.* ; Veitch Manual ed. 2, 282, f. ; Beissner Handbuch 151, f. 38 ; Sargent Silva x. t. 537. Southern United States. "The Deciduous Cypress."

Cupressus disticha, *L.*

Taxodium microphyllum, *Brongn.*

Var. *pendulum*.

Glyptostrobus pendulus, *Endl.* : Bot. Mag. t. 5603.

Taxodium sinense, *Gord.*

***T. mucronatum**, *Ten.* Mexico.

Tribe III.—Araucarineae.

Cunninghamia sinensis, *R. Br.* ; Bot. Mag. t. 2743 ; Beissner Handbuch 197, f. 49. South China.

Belis jaculiflora, *Salisb.*

Pinus lanceolata, *Lamb.*

- **Agathis australis*, *Salisb.*; Kirk Forest Flora of New Zealand tt. 79-81. New Zealand. "The Kauri Pine."
Dammara australis, *Lamb.*; Gard. Chron. 1883, xx. 525, f. 86.
- **A. loranthifolia*, *Salisb.*; Vidal Fl. Forest. Filip. t. 98a. Malaya.
- **A. Moorei*, *Mast.* New Caledonia.
Dammara Moorii, *Lindl.* Journ. Hort. Soc. 1851.
- **A. obtusa*, *Mast.*; Gard. Chron. 1897, xxi. 301, f. 103. New Hebrides.
Dammara obtusa, *Lindl.*
- **A. robusta*, *Mast.*; Queensl. Agric. Journ. ii. t. 10. N.E. Australia.
Dammara robusta, *C. Moore.*
- **A. vitiensis*, *Mast.* Fiji.
Dammara vitiensis, *Seem.* Fl. Vit. t. 76.
- **Araucaria Balansae*, *Brongn. & Gris.*; Ill. Hort. 1894, xxi. t. 197. New Caledonia.
A. elegans, *Hort. Bull.*
- **A. Bidwillii*, *Hook.*; Gard. Chron. 1873, 361, f. 73. Queensland. "The Bunya-Bunya."
- **A. brasiliana*, *Rich.*; Sieb. & Zucc. Fl. Jap. ii. t. 138. Mountains of S. Brazil.
A. brasiliensis, *Loud.*; Gard. Chron. 1887, i. 680, f. 132.
- **A. Cookii*, *R. Br.*; Gard. Chron. 1901, xxx. 387, f. 117. New Caledonia.
A. columnaris, *Hook.* Bot. Mag. t. 4635.
- **A. Cunninghamii*, *Ait.*; Sieb. & Zucc. Fl. Jap. ii. t. 139. Queensland. "The Moreton Bay Pine."

Araucaria Cunninghamii—cont.

*Var. *glauca*. Gard. Chron. 1888, iii. 685, f. 90.

A. glauca, *Antoine*.

**A. excelsa*, *R. Br.*; Sieb. & Zucc. Fl. Jap. ii. t. 140 ;
Flore des Serres tt. 2304, 2305. Norfolk Island.
"Norfolk Island Pine."

*Var. *albo-spica*.

*Var. *goldieana*, New Caledonia.

A. goldieana, *T. Moore* Florist and Pomologist 1877,
39 f.

*Var. *Muelleri*.

A. Muelleri, *Hort.* (not *Brongn. & Gris.*); Illustr.
Hortic. xxix. t. 449.

A. imbricata, *Pav.*; Flore des Serres tt. 1577-1580 ;
Veitch Manual ed. 2, 297, figs. 89, 90. Mountains
of Southern Chili. "Chili Pine."

Var. *aurea*.

**A. Rulei*, *F. Muell.*; Gard. Chron. 1861, 868; *Brongn. & Gris.* Descr. Plantes Remarquables Nouv. Caled.
t. 16. New Caledonia.

A. Niepratschki, *Hort. Lemoine*.

Tribe IV.—Abietineae.*Sub-tribe I.—PICEAE.*

**Tsuga brunoniana*, *Carr.*; Gard. Chron. 1886, xxvi. 501,
f. 101. East and Central Himalayas. "Indian
Hemlock Fir."

Abies brunoniana, *Lindl.*

A. dumosa, *Loud.*

Pinus brunoniana, *Wall.*

P. dumosa, *D. Don.*

Tsuga canadensis, *Carr.*; Sargent Silva xii. t. 603.
Beissner Handbuch 401, f. 709. N.E. America.
"The Hemlock Spruce."

Abies americana, *Marsh.*

A. canadensis, *Michx.*; Veitch Manual 114 f. 29.

A. curvifolia, *Salisb.*

Picea canadensis, *Link.*

Pinus americana, *Duroi.*

P. canadensis. *L.*

Var. argentea.

T. canadensis var. *albo-spica.*

Var. macrophylla.

Var. milfordiensis.

Var. parvifolia.

Var. pendula.

Var. pendula argentea.

Var. Sargentii pendula.

Var. variegata.

T. caroliniana, *Engelm.*; Sargent Silva xii. t. 604; Gard.
Chron. 1886, xxvi. 780, f. 153; Beissner Handbuch
406, f. 111; Veitch Manual ed. 2, 466, f. 116.
Southern Alleghanies.

Abies caroliniana, *Chapm.*

T. mertensiana, *Carr.* N. W. America.

T. albertiana, *Veitch* Manual ed. 2, 460 f.

T. heterophylla, *Sargent* Silva xii. t. 605.

Abies albertiana, *A. Murr.*

A. Bridgesii, *Kellogg.*

A. mertensiana, *Lindl. & Gord.*



Tsuga mertensiana—*cont.*

A. pattoniana, *McNab*. (not *Parl.*).

Pinus canadensis, *Bong.*

P. mertensiana, *Bong.*

T. pattoniana, *Engelm.* Mountains of California.

T. mertensiana, *Sargent* Silva xii. t. 606 (not *Carr.*);
Veitch Manual ed. 2, 469, f. 117.

Abies pattoniana, *Jeffrey*; Veitch Manual 116, ff. 30, 31;
Beissner Handbuch 409, f. 113.

A. Williamsoni, *Newb.*

Hesperopeuke pattoniana, *Lemmon.*

Pinus pattoniana, *Parl.*

Var. glauca.

Abies hookeriana, *A. Murr.*

T. Sieboldi, *Carr.*; Veitch Manual ed. 2, 473, f. 118;
Beissner Handbuch 395, f. 106. Japan. "Japanese
Hemlock Spruce."

Abies Araragi, *Loud.*

A. Tsuga, *Sieb. & Zucc.* Fl. Jap. ii. t. 106; Veitch
Manual 118 ff. 33, 34.

Pinus Araragi, *Sieb.*

P. Tsuga, *Antoine.*

Tsuga diversifolia, *Maxim.*

Tsuja Tsuja, *A. Murr.*

Var. nana.

† EUPICEA.—"Spruce Firs."

Picea alba, *Link.*; Beissner Handbuch 341, f. 96. North
Eastern America, British Columbia. "White
Spruce."

P. canadensis, *B. S. & P.*; Sargent Silva xii. t. 598.

Picea alba—cont.

P. caerulea, *Link.*

P. nigra var. *glauca*, *Carr.*

Abies alba, *Michx.*

A. alba var. *caerulea*, *Carr.*

A. arctica, *Seem.*

A. caerulea, *Forbes.*

A. canadensis, *Mill.*

A. laxa, *C. Koch.*

A. rubra var. *caerulea*, *Loud.*

Pinus alba, *Lamb.*

P. canadensis, *Duroi* (not *L.*).

P. glauca, *Moench.*

P. laxa, *Ehrh.*

P. rubra var. *violacea*, *Endl.*

Var. aurea.

Var. caerulea.

Var. caerulea Hendersoni.

Var. compacta.

Var. echiniformis, Carr.

Var. monstrosa.

Var. nivalis.

P. alcockiana, *Carr.*; *Gard. Chron.* 1880, xiii. 212, f. 43 ;
Beissner Handbuch 379, f. 101. Japan.

Abies acicularis, *Hort.*

A. alcockiana, *Veitch.*

A. excelsa acicularis, *Hort.*

Pinus alcockiana, *Parl.*

Picea bicolor, *Mayr.* Monog. Abiet. p. 49, t. 3. Japan.

Abies alcockiana (in part).

Abies bicolor, *Maxim* (partly).

Picea alcockiana (in part).

P. breweriana, *S. Wats.*; Sargent Silva xii. t. 601; Gard. Chron. 1886, xxv. 498, f. 93. Siskiyou Mountains, N. California. "Weeping Spruce"

P. Engelmanni, *Engelm.*; Sargent Silva xii. t. 599; Beissner Handbuch 344, f. 97. British Columbia, Oregon to Arizona.

Abies alba, *Torr.*

A. Engelmanni, *Parry.*

A. nigra, *Engelm.*

Pinus commutata, *Parl.*

P. Engelmanni, *Engelm.*

Var. *glauca*.

P. ericoides, *Hort.* A variety of uncertain origin.

P. excelsa, *Link.*; Köhler Med.-Pflanz. i. t. 8; Beissner Handbuch 353, f. 99. Mountains of Northern and Central Europe. "The common Spruce."

Abies excelsa, *DC.*

A. Picea, *Mill.*

A. rubra, *Bauhin.*

Picea vulgaris, *Link.*

Pinus Abies, *L.*

P. excelsa, *Lam.* (not *Wall.*).

***Picea excelsa*—cont.**

The varieties are extremely numerous and may [be classified into—

1. Dwarf Varieties.

Var. *clanbrassiliana*.

Var. *clanbrassiliana elegans*.

Var. *compacta*.

Var. *diffusa*.

Var. *dumosa*.

Var. *globosa nana*.

Var. *gregoryana*.

Var. *Maxwelli*.

Var. *microsperma*.

Var. *pygmaea*.

Var. *pygmaea glauca*.

Var. *Remonti*.

Var. *repens*.

2. Pendulous and “Snake-branched” Varieties.

Var. *Cranstoni*.

Var. *denudata*.

Var. *inverta*. Gard. Chron. 1901, xxix. 263, f. 98.

Var. *monstrosa*.

Var. *pendula*.

3. Colour Varieties.

Var. *argenteo-spica*.

Var. *aurea*.

Picea excelsa—cont.**4. Varieties showing other Differences in Leaf and Habit.**Var. *attenuata*.Var. *cincinnata*, *Hesse*.Var. *Dicksoni*.Var. *eremita*.Var. *gigantea*.Var. *laxa*.Var. *mucronata*.Var. *pinsapoides*.Var. *pyramidalis*.Var. *stricta*.Var. *tenuifolia*.**P. Glehni**, *Mast.* Gard. Chron. 1880, xiii. 300, f. 54. Island of Sachalin.Abies *Glehni*, *F. Schmidt*.**P. Maximowiczii**, *Regel.* ; Gard. Chron. 1880, xiii. 363, f. 64. Japan.Abies *Maximowiczii*, *Hort*.**P. Morinda**, *Link* ; Gard. Chron. 1885, xxiv. 383, f. 85. Himalaya.P. *smithiana*, *Boiss.* ; Veitch Manual ed. 2, 456, f. 112.Abies *Khutrow*, *Loud*.A. *smithiana*. *Forbes*.• Pinus *Khutrow*, *Royle*.P. *smithiana*, *Lamb*.**P. nigra**, *Link* ; Beissner Handbuch 334, f. 94. North Eastern America. "Black Spruce."P. *mariana*, *B. S. & P.* ; Sargent Silva xii. t. 596.

Picea nigra—cont.

Abies alba, *Chapm.*

A. americana, *C. Koch.*

A. arctica, *Hort.* (not *Seem.*).

A. denticulata, *Michx.*

A. Mariana, *Mill.*

A. marylandica, *Hort.*

A. nigra, *Poir.*

Pinus Mariana, *Duroi.*

P. nigra, *Ait.*

Var. aureo-marginata.

Var. Doumetti.

Var. pumila.

P. obovata, *Ledeb.* Ic. Pl. Ross. t. 499. N.E. Europe and N. Asia.

Abies obovata, *Loud.*

Var. japonica, *Maxim.*

Var. schrenkiana, *Carr.*

Abies schrenkiana, *Lindl. & Gord.*

Picea schrenkiana, *Fisch. & Mey.*

P. orientalis. *Carr.*; Gard. Chron. 1886, **xxv.** 333, f. 62; Veitch Manual ed. 2, 444, f. 109. Mountains of the Taurus and Caucasus.

Abies orientalis, *Poir.*

A. wittmanniana, *Hort.*

Pinus orientalis, *L.*

Var. aurea.

Var. nana.

Var. pygmaea, *Ohlend.*

Picea polita, *Carr.*; Veitch Manual ed. 2, 447, f. 110;
Beissner Handbuch 380, f. 102; Gard. Chron. 1880,
xiii. 233, f. 44. Mountains of Japan.

Abies Torano, *Sieb.*

A. polita, *Sieb. & Zucc.* Fl. Jap. ii. t. 111.

P. pungens, *Engelm.* Utah and California.

Picea commutata, *Hort. aliq.*

P. Engelmanni, *Hort.* (not *Engelm.*).

P. Menziesii, *Hort.* (not *Carr.*).

P. parryana, *Sargent* Silva xii. t. 600.

Abies Engelmanni, *Hort.* (not *Parry*).

A. Menziesii, *Engelm.* (in part).

A. Parlatoarei, *Hort.*

Var. diversifolia.

Var. glauca. *Veitch* Manual ed. 2, 449, f. 111. "Blue
Spruce."

P. annesleyana, *Hort.*

P. parryana glauca, *Hort.*

P. pungens argentea, *Hort.*

P. Sargentii, *Hort.*

Var. kosteriana.

P. rubra, *Link.*; Beissner Handbuch 339, f. 95.

Picea nigra var. **rubra**, *Engelm.*

P. rubens, *Sargent* Silva xii. t. 597.

Abies nigra var. **rubra**, *Michx.*

A. rubra, *Poir.*

A. rubra var. **arctica**, *Lindl. & Gord.*

Pinus americana, *Gaertn.*

Picea rubra—cont.

P. americana var. *rubra*, *Wangenh.*

P. rubra, *Lamb.*

Var. monstrosa.

†† OMORICA.—“*Flat-leaved Spruce Firs.*”

P. ajanensis, *Fisch.*; *Bot. Mag.* t. 6743; *Beissner Handbuch* 386, f. 104. Amoor, Japan.

Abies ajanensis, *Kent.*

A. alcockiana, *Hort.* (in part).

A. sitchensis, *C. Koch* (not *Bong.*).

Picea Menziesii, *Parl.*

Tsuga ajanensis, *Regel.*

Var. microsperma.

P. ajanensis var. *japonica*.

P. jezoensis, *Maxim.* (not *Sieb.*).

P. hondoensis, *Mayr.* *Monogr. Abiet.* Japan t. 4. Japan.

P. Omorica, *Mast.*; *Gard. Chron.* 1884, xxi. 308, f. 58; *Beissner Handbuch* 383, f. 103. Servia, Bosnia. “*Servian Spruce.*”

Pinus Omorika, *Panc.*

P. sitchensis, *Trautv. & Mey.*; *Sargent Silva* xii. t. 602; *Beissner Handbuch*, 391, f. 105; *Gard. Chron.* 1886, xxv. 728, f. 161. N.W. America. “*Sitka Spruce.*”

Picea Menziesii, *Carr.*

P. sitkaensis, *Mayr.*

Abies Menziesii, *Loud.*

A. sitchensis, *Lindl. & Gord.*

Pinus Menziesii, *Dougl.*

P. sitchensis, *Bong.*

Sub-tribe II.—LARICEAE.

CEDARS.

Cedrus atlantica, *Manetti.*; Gard. Chron. 1891, x. 425, f. 53; Gard. & For. 1896, 417. North Africa. "The Atlas Cedar."

C. africana, *Gord.*

Abies atlantica, *Lindl. & Gord.*

Pinus Cedrus var. *atlantica*, *Parl.*

Var. *aurea*.

Var. *fastigiata*, *Carr.*

Var. *glauca*.

Var. *pendula*.

C. Deodara, *Loud.*; Gard. Chron. 1891, x. 423, f. 52. Himalaya. "The Deodar."

Cedrus indica, *Chambr.*

C. Libani var. *Deodora*, *Hook. f.*

Abies Deodara, *Lindl.*

Larix Deodara, *C. Koch.*

Pinus Deodara, *Roxb.*

Var. *albo-spica*.

Var. *crassifolia*.

Var. *erecta*.

Var. *pendula*.

Var. *robusta*.

Var. *variegata*.

Var. *verticillata*.

Var. *viridis*.

Var. *Youngi*.

Cedrus Libani, *Loud.*; *Gard. Chron.* 1878, ix. f. 113; 1886, xxvi. 521, f. 102; 553, f. 109; *Beissner Handbuch* 299, f. 74. Syrian Mountains. "Cedar of Lebanon."

C. patula, *C. Koch.*

Abies Cedrus, *Poir.*

Larix Cedrus, *Mill.*

L. patula, *Salisb.*

Pinus Cedrus, *L.*

Var. brevifolia, *Hook. f.*; *Journ. Linn. Soc.* xvii. 517. Cyprus.

Var. pendula.

Var. pyramidalis.

LARCHES.

Larix davurica, *Trautv.* Siberia.

L. dahurica, *Turcz.*; *Beissner Handbuch* 329. f. 90.

L. europaea, *DC.*; *Reichb. Ic. Fl. Germ.* xi. t. 531. European Alps. "The Larch."

L. decidua, *Mill.* (1759).

L. excelsa, *Link.*

L. pyramidalis, *Salisb.* (1805).

L. vulgaris, *Fisch.*

Abies Larix, *Lam.*

Pinus Larix, *L.*

Var. glauca pendula.

Var. pendula, *Loud.*; *Veitch Manual* ed. 2, 392, f. 99.

Var. pendulina, *Regel*; *Beissner Handbuch* 325, f. 89.

Var. rossica, *Regel*; *Beissner Handbuch* 325, f. 88.

Var. sibirica, *Beissner Handbuch* 324, f. 87. "Siberian Larch."

L. archangelica, *Hort.*

L. sibirica, *Ledeb.*



Larix Griffithii, *Hook. f.*; Gard. Chron. 1886, xxv. 718, f. 157;
Veitch Manual ed. 2, 396, f. 101. Beissner
Handbuch, 317, f. 82. Eastern Himalaya.

Abies griffithiana, *Lindl. & Gord.*

Pinus Griffithii, *Parl.*

L. leptolepis, *Endl.*; Beissner Handbuch 318, f. 83; Gard.
Chron. 1883, xix. 88, f. 13; Veitch Manual ed. 2,
398, f. 102. Japan.

L. japonica, *Carr.*

Abies leptolepis, *Sieb. & Zucc.* Fl. Jap. ii. t. 105.

Pinus leptolepis, *Endl.*

Var. *murraiana*.

Var. *pendula*.

L. occidentalis, *Nutt.*; Sargent Silva xii. t. 594, Veitch
Manual ed. 2, 401, f. 104. North-Western America.

Pinus Nuttallii, *Parl.*

L. pendula, *Salisb.* (1805). North-Eastern America.
"Tamarack," "Black Larch."

Larix americana, *Michx.* (1813); Sargent Silva xii.
t. 593.

L. americana var. *rubra*, *Loud.*

L. microcarpa, *Forbes.*

Abies microcarpa, *Lindl. & Gord.*

A. pendula, *Lindl. & Gord.*

Pinus laricina, *Duroi.*

P. microcarpa, *Lamb.*

P. pendula, *Ait.*

Pseudolarix Kaempferi, *Gord.*; Flore des Serres t. 1777;
Gard Chron. 1884, xxi. 584, f. 113; 1884, xxii. 238,
f. 48. China. "The Golden Larch."

P. Fortunei, *Mayr.*

Abies Kaempferi, *Lindl.*

Pseudolarix Kaempferi—cont.

Laricopsis Kaempferi, *Kent.*; Veitch Manual ed. 2, 404, ff. 105-6.

Larix Kaempferi, *Carr.*

Pinus Kaempferi, *Lamb.*

Sub-tribe III.—SAPINEAE.

**Keteleeria davidiana*, *Franch.*; Beissner Handbuch 425, f. 117; Gard. Chron. 1903, xxxiii. 85, figs. 37, 38. China.

Pseudotsuga davidiana, *C. E. Bertr.*

**K. Fortunei*, *Carr.*; *Rev. Hort.* 1887, 207, ff. 42-5; Beissner Handbuch 422, f. 116; Gard. Chron. 1889, vi. 688, f. 95 (leaf structure). China.

Abies Fortunei, *A. Murr.*; Gard. Chron. 1884, xxi. 348, ff. 64-7; 1886, xxv. 428, ff. 82-3.

A. jezoensis, *Lindl.* (not *Sieb.*).

Abietia Fortunei, *Kent.*

Picea Fortunei, *A. Murr.*

Pinus Fortunei, *Parl.*

**K. sacra*, *Beissn.* China.

Abies sacra, *Franch.*; *Nouv. Arch. Mus.* ser. 2, vii. t. 14.

SILVER FIRS.

Abies amabilis, *Forbes*; Sargent Silva xii. t. 614; Gard. Chron. 1880, ff. 136-141; Beissner Handbuch 469, f. 128; Veitch Manual ed. 2, 491, ff. 126-9, British Columbia to Oregon.

Abies grandis, *A. Murr.* (not *Lindl.*).

A. grandis var. *densiflora*, *Engelm.*

Picea amabilis, *Loud.*

Pinus amabilis, *Dougl.*

P. grandis, *Lamb.* (not *Dougl.*).

Abies balsamea, *Mill.*; Sargent Silva xii. t. 610; Gard. Chron. 1895, xvii. 423, 425, 431, ff. 57, 58, 60. N.E. America. "Balm of Gilead" or "Balsam Fir."

Abies balsamifera, *Michx.*

Picea balsamea, *Loud.*

Pinus balsamea, *L.*

Var. *hudsonica*, *Sargent.* "Dwarf Balsam Fir"

Var. *variegata*, *Beissn.*

A. brachyphylla, *Maxim.*; Gard. Chron. 1879, xii. 556, f. 92; Bot. Mag. t. 7114. Japan.

Abies umbilicata, *Hort.* (not *Mayr.*)

A. Veitchii (*of some gardens*).

Picea brachyphylla, *Gord.*

P. pinnosa, *Hort.*

P. Veitchii (*of some gardens*).

Pinus brachyphylla, *Parl.*

A. bracteata, *Nutt.*; Bot. Mag. t. 4740; Gard. Chron. 1889, v. 242, f. 44. Santa Lucia Mts., California. "Santa Lucia Fir"

A. venusta, *C. Koch*; Sargent Silva xii. tt. 615, 616.

Picea bracteata, *Loud.*; Garden 1889, xxxv. 12, f.

Pinus bracteata, *D. Don.*

P. venusta, *Dougl.*

A. cephalonica, *Loud.*; Gard. Chron. 1884, xxii. 592, f. 105; Mouillefert Arbres tt. 133, xxvi. ter. Mountains of Greece.

A. Apollinis, *Link*

A. panachaica, *Heldr.*

A. Reginae-Amaliae, *Heldr.*

Picea cephalonica, *Loud.*

Pinus Abies var. *cephalonica*, *Parl.*

Abies cilicica, *Carr.* Flore des Serres t. 1108 bis;
Beissner Handbuch 449, f. 122. Cilician Taurus.

A. Tschugatskoi, *Gord.*

Pinus cilicica, *Parl.*

A. concolor, *Lindl. & Gord.*; Sargent Silva xii. t. 613;
Gard. Chron. 1890, viii. 748, ff. 147-8; Veitch
Manual ed. 2, 502, f. 129; Beissner Handbuch 472,
f. 130. Colorado, Utah, Arizona.

Picea concolor, *A. Murr.*

P. lasiocarpa, *Balfour* (not *Hook.*).

Pinus concolor, *Parl.*

Var. argentea *Wallezi*.

Var. pendula.

Var. violacea.

A. concolor var. *violacea*.

Picea concolor var. *violacea*, *Roezl.*

A. firma, *Sieb. & Zucc.* Fl. Jap. ii. t. 107; Veitch Manual 95,
f. 16; ed. 2, 506, ff. 130-2. Beissner Handbuch 451,
f. 123. Japan.

A. bifida, *Sieb. & Zucc.* Fl. Jap. ii. t. 109.

A. holophylla, *Maxim.*

Pinus firma, *Antoine*.

A. Fraseri, *Lindl.*; Sargent Silva xii. t. 609; Garden and
Forest 1889, ii. 472, f. 132. Southern Alleghanies.

A. humilis, *La Pilaye*.

Picea Fraseri, *Loud.*

Pinus Fraseri, *Parl.*

A. grandis, *Lindl.*; Sargent Silva xii. t. 612. Veitch
Manual 98, f. 24; ed. 2, 512, f. 133. Beissner Hand-
buch 478, f. 133. Vancouver to California.

A. amabilis, *A. Murr.* (not of *Forbes.*).

Abies grandis—cont

A. gordoniana, *Carr.*

Picea grandis, *Loud.*

Pinus grandis, *Dougl.*

A. homolepis, *Sieb. & Zucc.* Fl. Jap. ii. t. 108 ; *Gard.*
Chron. 1879, xii. 823, f. 136. Japan.

A. brachyphylla, *Mayr.*

A. tschonoskiana, *Hort.*

Pinus harryana, *McNab.*

A. lasiocarpa, *Hook.* (not *Hort.*) ; *Sargent Silva* xii. t. 611.
Gard. Chron. 1889, v. 172, ff. 23-32 ; *Veitch Manual*
ed. 2, 515, f. 134. British Columbia to Colorado.

A. (*Picea*) *bifolia*, *A. Murr.*

A. grandis, *Engelm.* (in part).

A. subalpina, *Engelm.*

A. subalpina var. *fallax*, *Engelm.*

Picea amabilis, *Gord.* (in part).

Pinus amabilis, *Parl.* (in part).

Var. arizonica. *Gard. Chron.* 1901, ff. 52-3.

A. arizonica var. *argentea*, *Hort.*

Var. caeruleascens.

A. lowiana, *A. Murr.* ; *Gard. Chron.* 1890, viii. 750, ff. 149,
150. Sierra Nevada.

A. concolor, *Sargent* (in part).

A. grandis var. *lowiana*, *Mast.*

A. lasiocarpa, *Beissn.*

A. parsonsiana (*of some gardens*).

Picea lowiana, *Gord.*

Abies magnifica, *A. Murr.*; Sargent Silva xii. tt. 618-9.
Beissner Handbuch 482, f. 135. Californian Sierras.

A. campylocarpa, *A. Murr.*

Picea magnifica, *Gord.*

Pinus amabilis, *Parl.* (in part).

Var. *xanthocarpa*.

A. magnifica var. *shastensis*, *Lemmon*; Sargent Silva xii. t. 620.

A. nobilis var. *robusta*, *Mast.* Gard. Chron. 1885, xxiv. 657, f. 147.

A. shastensis, *Lemmon*.

A. Mariesii, *Mast.* Gard. Chron. 1879, xii. 788, t. 129;
Beissner Handbuch 455, f. 124. Mountains of Japan.

A. nobilis, *Lindl.*; Sargent Silva xii. t. 617. Veitch Manual ed. 1, 101 f.; ed. 2, 521, f. 136. Oregon, California.

A. magnifica, *Engelm.* (in part).

Picea nobilis, *Loud.*

Pinus nobilis, *Dougl.*

Var. *glauca*.

A. nordmanniana, *Spach*; Bot. Mag. t. 6992. Crimea.

Picea nordmanniana, *Loud.*

Pinus Abies, *Parl.*

A. numidica, *De Lannoy*; Flore des Serres t. 1717; Gard. Chron. 1888, iii. 140 (in part and excl. figs.). Algerian mountains.

A. Pinsapo var. *baborensis*, *Cosson*.

Picea numidica. *R. Smith*.

Pinus Pinsapo, *Parl.* (not *Boiss.*).

A. pectinata, *DC.* (1805); Reichb. Ic. Fl. Germ. xi. t. 533;
Beissner Handbuch 430, f. 119. Mountains of Central and Southern Europe. "Silver Fir."

A. alba, *Mill.* (1768).

***Abies pectinata*—cont.**

A. excelsa, *Salisb.* (1805).

A. Picea, *Lindl.*

A. taxifolia, *Desf.* (1809).

A. vulgaris, *Poir.* (1804).

Picea pectinata, *Loud.*

Pinus Abies, *Duroi* (1771).

P. pectinata, *Lam.* (1778).

P. Picea, *L.* (1753).

- A. Pinsapo**, *Boiss.* ; *Gard. Chron.* 1885, xxiv. 468, f. 99, xxvi. 9, f. 1 ; 1888, iii. 140, f. 22 (section of leaf); *Laguna Fl. Forest. Esp.* tt. 2, 3. Mountains of Southern Spain.

Var. *glauca*.

- A. sachalinensis**, *Mast.* *Gard. Chron.* 1879, xii. 588, f. 97 ; *Veitch Manual* ed. 2, 538, f. 138. Sachalin, Yesso.

A. Veitchii var. *sachalinensis*, *Schmidt* ; *Beissner Handbuch* 461, f. 127.

- A. sibirica**, *Ledeb.* *Ic. Pl. Ross.* t. 500 ; *Beissner Handbuch* 455 ; *Veitch Manual* 111. North and East Russia.

A. Pichta, *Forbes.*

Picea Pichta, *Loud.*

- A. Veitchii**, *Lindl.* *Gard. Chron.* 1880, xiii. 273, f. 50. *Beissner Handbuch* 459, f. 125 ; *Veitch Manual* ed. 2, 541, f. 139. Mountains of Japan.

Abies Eichleri, *Lauche.*

A. nephrolepis, *Maxim.*

Picea Veitchii, *Horl.*

Pinus selenolepis, *Parl.*

Abies webbiana, *Lindl.* Gard. Chron. 1891, x. 393, 395, 399. Veitch Manual ed. 1, 109 f.; ed. 2, 544, f. 141; Beissner Handbuch 480, f. 134. Himalaya.

Abies chiloensis, *Hort.*

A. chilrowensis, *Hort.*

Picea webbiana. *Loud.*

Var. **Pindrow**, *Brandis*; *Loud.* Encyl. 1052, f. 1970. North-Western Himalaya.

Picea Pindrow, *Loud.*

Pinus Pindrow, *Royle* Illustr. Bot. Himal. t. 86.

Pseudotsuga Douglasii, *Carr.*; Beissner Handbuch 413, f. 115. N.W. America. "The Douglas Fir."

P. mucronata, *Ludw.*; Sargent Silva xii. t. 607.

P. taxifolia, *Britton.*

Abies Douglasii, *Lindl.*; Veitch Manual 120, f. 35.

A. mucronata, *Rafin.*

A. taxifolia, *Poir.*

Abietia Douglasii, *Kent*; Veitch Manual ed. 2, 475, ff. 120-122.

Picea Douglasii, *Link.*

Pinus Douglasii, *Sabine.*

P. taxifolia, *Lamb.*

Tsuga Douglasii, *Carr.*

Var. **brevifolia**.

Var. **elegans**.

Var. **glauca pendula**.

Var. **revoluta**.

Var. **Stairii**.

Var. **taxifolia**.

Var. **variegata**.



Pseudotsuga macrocarpa, *H. Mayr*; Sargent Silva xii. t. 608. Southern California.

Abies Douglasii var. *macrocarpa*, *Torr.*

A. macrocarpa, *Vasey*.

Sub-tribe IV.—PINEAE. "Pines."

† PINASTER.

Pinus albicaulis, *Engelm*; Sargent Silva xi. t. 548. North-West America.

P. cembroides, *Newb.* (not *Zucc.*).

P. flexilis, *A. Murr.* (in part).

P. flexilis var. *albicaulis*, *Engelm.*

P. Shasta, *Carr.*

P. balfouriana, *A. Murr*; Gard. Chron. 1876, v. 332, f. 58; Sargent Silva xi. t. 553. California.

Var. *aristata*, *Engelm*; Gard. Chron. 1896, xx. 719, f. 126.

Pinus aristata, *Engelm*; Sargent Silva xi. t. 554.

P. banksiana, *Lamb.* North-Eastern United States and Eastern Rocky Mountains.

P. divaricata, *Du Mont*; Sargent Silva xi. t. 588.

P. hudsonica, *Poir.*

P. bungeana, *Zucc.*; Gard. Chron. 1882, xvii.; 8, f. 2. North China. "Lace Bark Pine."

P. excorticata, *Lindl. & Gord.*

**P. canariensis*, *C. Sm.*; Gard. Chron. 1888, iii. 723, f. 94. Canaries.

P. cembroides, *Zucc.* Sargent Silva xi. t. 550. Arizona.

P. llaveana, *Schiede & Deppe.*

P. osteosperma, *Engelm.*

Pinus contorta, *Dougl.*; Gard. Chron. 1883, xix. 45, f. 5;
Sargent Silva xi. t. 567. North-West America, near
the coast.

P. Bolanderi, *Parl.*

P. Boursieri, *Carr.*

P. inops, *Bong.*

P. macintoshiana, *Lawson.*

Var. *murrayana*, *Engelm.*; Sargent Silva xi. t. 568.
Californian valleys.

P. contorta var. *latifolia*, *Hort.*

P. murrayana, *Lemmon.*

P. Coulteri, *D. Don.*; Gard. Chron. 1885, xxiii. 415, ff. 73,
74; Tree at Kew, 1888, iv. 765, f. 109; Sargent
Silva xi. t. 571-2. California.

P. macrocarpa, *Lindl.*

**P. cubensis*, *Griseb.* South United States, Bahamas,
Central America. "Slash Pine," "Swamp Pine."

P. bahamensis, *Griseb.*; Hook. Icon. Plant. t. 1807.

P. Elliottii, *Engelm.*

P. heterophylla, *Sudworth*; Sargent Silva xi. tt. 591-2.

P. Taeda var. *heterophylla*, *Elliott.*

P. densiflora, *Sieb. & Zucc.* Fl. Jap., ii. 22, t. 112. Japan.

P. massoniana, *Hort.* (in part).

P. tabuliformis, *Hort.*

Var. *argenteo-variegata*.

Var. *aureo-variegata*.

P. edulis, *Engelm.*; Gard. Chron. 1892, xii. 563, f. 86;
Sargent Silva xi. t. 552. New Mexico.

P. cembroides, *Gord.* (not *Zucc.*).



**Pinus filifolia*, *Lindl.* ; *Loud.* *Encycl.* 1008, ff. 1889, 1890.
Guatemala.

P. Skinneri, *Forbes*.

P. gerardiana, *Wall.* ; *Royle Illustr. Bot. Himal.* t. 85, f. 2.
North-Western Himalaya, Afghanistan.

P. halepensis, *Mill.* ; *Gard. Chron.* 1884, xxii. 553, f. 97 ;
1888, iii. 629, f. 84. Mediterranean Region. "The
Jerusalem Pine."

P. abchasica, *Fisch.*

P. hierosolymitana, *Duhamel* (1755).

P. maritima, *Lamb.*

P. persica, *Hort.*

P. Pithyusa, *Strangw.*

Var. *prolifera*.

P. inops, *Soland.* (1789). North-Eastern United States.
"Scrub Pine."

P. variabilis, *Lamb.*

P. virginiana, *Mill.* (1768) ; *Sargent Silva* xi. t. 581.

P. insignis, *Dougl.* ; *Gard. Chron.* 1878, ix. 108, ff. 22, 23 ;
1891, ix. 337, f. (habit). California. "The
Monterey Pine."

P. radiata, *D. Don.* ; *Veitch Manual* ed. 2, 371, f. 98 ;
Sargent Silva xi. tt. 573-4.

P. tuberculata, *D. Don.* (not *Gord.*).

P. Jeffreyi, *A. Murr.* ; *Gard. Chron.* 1889, v. 361, f. 65.
California.

Var. *deflexa*, *Torr.*

P. Laricio, *Poir.* ; *Gard. Chron.* 1884, xxi. 15, f. 1 ; (Tree
at Kew), 1888, iv. 693, f. 97 ; *Köhler Med.-Pflanz* ii.
t. 161 ; *Beissner Handbuch* 239, f. 59. South Europe,
Levant. "The Corsican Pine."

P. Laricio var. *latisquama*, *Willk.*

Pinus Laricio—cont.

P. Laricio var. *poiretiana*, *Antoine*.

P. maritima, *Ait.*

The varieties of this species are extremely numerous and their identification and synonymy proportionately uncertain. The following forms may be roughly thrown under the following varieties, but they are not to be considered as strictly synonymous.

Var. *leucodermis*, *Hort. Kew.*

P. leucodermis, *Antoine*.

Var. *nigricans*, *Parl.* "Austrian Pine."

P. austriaca, *Hoess.*

P. calabrica, *Delamarre.*

P. dalmatica, *Vis.*

P. Laricio var. *austriaca*, *Endl.*

P. Laricio var. *stricta*, *Carr.*

P. magellensis, *Guss.*

P. maritima, *C. Koch.*

P. nigra, *Link.*

P. nigricans, *Hoess.*

P. Pinaster, *Bess.* (not *Sol.*).

P. romana, *Hort.*

P. sylvestris, *Baumg.*

P. taurica, *Hort.*

Var. *pallasiana*.

P. caramanica, *Bosc.*

P. Fenzlii, *Antoine.*

P. halepensis, *Bieb.* (not *Mill.*).

P. karamana, *Mast.* Gard. Chron. 1884, xxi. 480, f. 91.

P. maritima, *Pall.*

P. neglecta, *Hort.*

P. pallasiana, *Lamb.*

P. Pinea, *Habl.* (not *L.*).

Pinus Laricio—cont.

Var. *pindica*, *Mast.* Gard. Chron. 1902, xxxi. 302, f. 95.

P. *pindica*, *Formanek.*

Var. *tenuifolia*, *Parl.*

P. *Laricio* var. *angustisquama*, *Willk.*

P. *Laricio* var. *cebennensis*, *Gren. & Godr.*

P. *Laricio* var. *leptophylla*, *Christ.*

P. *pyrenaica*, *Lapeyr.* (in part).

P. *Salzmanni*, *Dun.*

The following are garden varieties :—

Var. *aureo-variegata.*

Var. *nana aurea.*

Var. *pendula.*

Var. *pumila.*

Var. *pygmaea.*

Var. *variegata.*

*P. *longifolia*, *Roxb.* ; Royle Illustr. Bot. Himal. t. 85, f. 1.
Himalaya.

*P. *massoniana*, *Lamb.* Pin. ed. 2, ii. 16. t. 8.

P. *sinensis.*

P. *mitis*, *Michx.* Eastern United States. "Yellow Pine."

P. *echinata*, *Mill.* ; Sargent Silva xi. t. 587.

P. *Taeda* var. *variabilis*, *Ait.*

P. *variabilis*, *Pursh* (not *Lamb.*).

P. *monophylla*, *Torr.* ; Gard. Chron. 1883, xx. 44, f. 8 ;
1886, xxvi. 137, f. 24 (habit) ; Sargent Silva xi.
t. 551. Sierra Nevada, Utah.

P. *fremontiana*, *Endl.*

Pinus montana, *Duroi*; Laguna Fl. Forest. Esp. t. 7;
Hempel Bäume t. 5. Mountains of Central and
Southern Europe.

Var. **Fischeri**.

Var. **Mughus**.

P. Mughus, *Scop.*

Var. **Pumilio**.

P. Mughus, *Wahlenb.*

P. Mughus var. Pumilio.

P. Pumilio, *Haenke*.

P. sylvestris var. Pumilio.

Var. **Pumilio variegata**.

Var. **uncinata**, *Mast.* Gard. Chron. 1884, xxii. 208, f. 42.
Pyrenees.

P. sanguinea, *Lapeyr.*

P. uncinata, *Ram.*

*P. **Montezumae**, *Lamb.* var. *lindleyana*; Gard. Chron.
1894, xv. 273, ff. 29-32; 1899, xxv. 147, f. 53.
Mexico.

P. lindleyana, *Gord.* Journ. Hort. Soc. 1850, v. 215.

P. **muricata**, *D. Don.*; Gard. Chron. 1884, xxi. 49, ff. 7-9;
Sargent Silva xi. tt. 585-6. California.

P. edgariana, *Hartw.*

P. radiata, *Hort.* (not *D. Don.*).

P. **palustris**, *Mill.* Sargent Silva xi. tt. 589-90. South
United States. "True Pitch Pine."

P. australis, *Michx.*

P. **parryana**, *Engelm.* South California.

P. quadrifolia, *Sudw.* ex Sargent Silva xi. 43, t. 549.

Pinus Pinaster, *Soland.*; Sowerby Engl. Bot. ed. 3, viii. t. 1381. Mediterranean region. "Cluster Pine."

P. helenica, *Loud.*

P. Laricio, *Santi.*

P. Latteri, *Madden.*

P. maritima, *Poir.*

P. nepalensis, *Royle.*

P. sylvestris var. *L.*

Var. *Hamiltoni*, *Lindl. & Gord.*

P. Hamiltoni, *Tenore.*

P. Pinea, *L.*; Laguna Fl. Forest. Esp. tt. 4, 5; Gard. Chron. 1888, iv. 604, ff. 84-5. Mediterranean region. "The Stone or Umbrella Pine."

P. ponderosa, *Dougl.*; Gard. Chron. 1890, viii. 557, ff. 110-115; Sargent Silva xi. t. 560-5. British Columbia to Texas.

A very variable species: the following names represent some of the more prominent forms or varieties:—

P. Beardsleyi, *A. Murr.*

P. benthamiana, *Hartw.*

P. brachyptera, *Engelm.*

P. craigiana, *A. Murr.*

P. Engelmanni, *Torr.*

P. parryana, *Gord.* (not *Engelm.*).

Var. *pendula*, *Sargent.*

Var. *scopulorum*, *Engelm.*

P. pungens, *Michx.*; Beissner Handbuch 214, f. 56; Sargent Silva xi. t. 584. East Central United States.

- Pinus pyrenaica*, *Lapeyr.*; Gard. Chron. 1888, iv. 267, f. 32.
South Europe, Levant. "The Calabrian Pine."
- P. Brutia*, *Tenore.*
- P. loiseleuriana*, *Carr.*
- P. paroliniana*, *Webb.*
- P. resinosa*, *Soland.*; Forbes Pinet. Woburn. t. 6. North-
Eastern America. "Canadian Red Pine."
- P. rubra*, *Michx.*
- P. rigida*, *Mill.*; Beissner Handbuch 268, f. 64; Sargent
Silva xi. t. 579. Eastern United States.
- P. Loddigesii*, *Loud.*
- P. sabiniana*, *Dougl.*; Sargent Silva xi. tt. 569-70; Gard.
Chron. 1888, iv. 44, f. 4. Tree at Kew, 1889, v. 45,
f. 6. California. "Nut Pine."
- P. serotina*, *Michx.* Sargent Silva xi. t. 580. North
Carolina to Florida.
- P. Taeda* var. *alopecuroidea*, *Loud.*
- P. rigida* var. *serotina*, *Loud.*
- P. sylvestris*, *L.*; Sowerby Engl. Bot. ed. 3, viii. t. 1380;
Beissner Handbuch 227, f. 58. Northern Europe,
Asia. Scotch Pine.
- P. hagenensis*, *Loud.*
- P. rigensis*, *Desf.*
- P. rubra*, *Mill.*
- P. sylvestris* var. *genuina*, *Heer.*
- Var. *altaica.*
- Var. *argentea*, *Steven.*
- Var. *aurea.*
- Var. *beucoriensis.*
- Var. *fastigiata*, *Carr.*

Pinus sylvestris—cont.Var. *globosa*.Var. *nana*.Var. *pumila*.Var. *uralensis*.Var. *variegata*.

P. Taeda, L.; Sargent Silva xi. tt. 577-8. South-eastern United States. "Torch or Loblolly Pine."

P. Thunbergii, Parl. Japan.

P. massoniana, *Sieb. & Zucc.* (not *Lamb.*); Fl. Jap. ii. tt. 113, 114.

P. Pinaster, *Loud.* (in part).

P. rubra, *Sieb.*

P. sylvestris, *Thunb.* (not *L.*).

Var. *aurea*.Var. *variegata*.

***P. torreyana, Torr.**; Sargent Silva xi. tt. 557-8. Southern California. "Soledad Pine."

P. lophosperma, *Lindl.*

P. tuberculata, Gord. (not *D. Don*); Gard. Chron. 1885, xxiv. 786, f. 184. Oregon.

P. attenuata, *Lemmon*; Sargent Silva xi. tt. 575-6.

P. californica, *Hartw.* (not *Loisel.*).

†† STROBUS.

P. Armandi, Franch. Nouv. Arch. du Mus. Ser. 2, vii. t. 12. Gard. Chron. 1903, xxxiii. 66, 67, ff. 30, 31. China.

Pinus Ayacahuite, *Ehrenb.*; Gard. Chron. 1882, xviii. 492, f. 83. Mexico. "Hickory Pine."

P. Buonaparteae, *Roezl.*

P. colorado, *Roezl.*

P. Don Pedri, *Roezl.*

P. durangensis, *Roezl.*

P. hamata, *Roezl.*

P. loudoniana, *Gord.*

P. Popocatepetlii, *Roezl.*

P. Veitchii, *Roezl.*

P. Cembra, *L.*; Gard. Chron. 1872, 397; Beissner Handbuch 276, f. 65; Hempel Bäume t. 8. Mountains of Central Europe; Siberia. "The Stone Pine."

Var. *aurea*.

Var. *pumila*, *Pall.* Flora Rossica 5, t. 2.

Var. *sibirica*.

P. excelsa, *Wall.*; Gard. Chron. 1883, xix. 249, f. 35; Mouillefert Arbres t. 28 ter. Temperate Himalaya. "The Bhotan Pine."

Var. *zebrina*.

P. flexilis, *James*; Gard. Chron. 1875, iv. 356, f. 75; Sargent Silva xi. tt. 546-7. Eastern Rocky Mountains to Texas, &c.

P. koraiensis, *Sieb. & Zucc.*; Beissner Handbuch 281, f. 68, Veitch Manual 178, f. 40; ed. 2, 335, f. 94; Gard. Chron. 1903, xxxiii. 34, 35, ff. 18, 19. Korea, Japan.

P. mandshurica, *Rupr.*

Var. *variegata*.

P. lambertiana, *Dougl.*; Gard. Chron. 1885, xxiii. 11, 1887, i. 769, f. 144; Sargent Silva xi. tt. 542-3. California, Oregon. "The Sugar Pine."

Pinus monticola, *Dougl.*; Sargent Silva xi. tt. 540-1; Veitch Manual 181, f. 41; ed. 2, 349, f. 95. Vancouver's Island, California.

P. parviflora, *Sieb. & Zucc.* Fl. Jap. ii. t. 115; Gard. Chron. 1878, x 624, f. 103. Japan.

P. Peuke, *Griseb.*; Gard. Chron. 1883, xix. 244, ff. 33, 34. Macedonia.

P. excelsa, *Hook.* (not *Wall.*).

P. excelsa var. *Peuke*, *Beissner*.

P. Strobis, *L.*; Beissner Handbuch 290, f. 72; Sargent Silva xi. tt. 538-9. Canada, North-Eastern America. "The Weymouth Pine."

Var. *compacta*.

Var. *densa*.

Var. *fastigiata*.

Var. *nana*.

P. Strobis var. *pygmaea*, *Hort.*

Var. *nivea*.

Var. *prostrata*.

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TO

GENERA, TRIBES, SUB-TRIBES, SPECIES,
AND SYNONYMS.

NOTE.—The typography is the same as in the list, that is, the names adopted at Kew are printed in thick, those which are regarded as synonymous in ordinary, type. The abbreviation in italics after each name indicates the author who first published it. As this indication is only of interest to anyone who wishes to trace the original description, it is, for the sake of simplicity, omitted on the permanent labels attached to the trees and shrubs in the living collections. One abbreviation needs a word of explanation: Hort. (= Hortorum) is attached to names which are current in gardens. They have no recognised authority, are usually of uncertain origin, or at the best have only been published in nurserymen's catalogues without distinctive characters by which the plants can be recognised; they are only cited for purposes of convenience.

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Official Guide to the Museums of Economic Botany. No. 3. Timbers. 2nd Ed., revised and augmented. 1893. Price 3*d.* Post free 4*d.*

Official Guide to the North Gallery. 5th Ed., revised and augmented. 1892. Price 4*d.* Post free 5½*d.*

Hand-list of Trees and Shrubs grown in Arboretum (excluding Coniferae). 2nd Ed. 1902. Price 1*s.* 3*d.* Post free: Inland, 1*s.* 7½*d.*; Foreign and Colonial, 1*s.* 10*d.* Part II. (1st Ed.): Gamopetalae & Monocotyledons. 1896. Price 1*s.* Post free 1*s.* 2½*d.*

Hand-list of Coniferae grown in the Royal Gardens. 2nd Ed. 1903. Price . Post free

Hand-list of Ferns and Fern Allies cultivated in the Royal Gardens. 1896. Price 6*d.* Post free 7½*d.*

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Hand-list of Tender Monocotyledons cultivated in the Royal Gardens. 1897. Price 9*d.* Post free 11½*d.*

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Mycologic Flora of the Royal Gardens, Kew. 1897. Price 4*d.* Post free 5½*d.*

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